Visual Studio® LIVE!

EXPERT SOLUTIONS FOR .NET DEVELOPERS

LAS VEGAS
MAR 13-17 2017
BALLY'S, LAS VEGAS, NV

ROCK YOUR CODE TOUR 2017

VIVA LAS CODE!

Bonus Content
ModernApps LIVE!
MOBILE, CROSS-DEVICE & CLOUD DEVELOPMENT

Presented in Partnership with **Magenic**

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TRACK TOPICS:

- ALM / DevOps
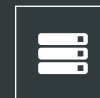- Cloud Computing
- Database and Analytics
- Mobile Client
- Software Practices
- Visual Studio / .NET Framework
- Web Client
- Web Server
- Windows Client
- Modern Apps Live!

CONTENTS

A MESSAGE FROM THE CONFERENCE CO-CHAIRS

**YOU GOT THAT FIRE BURNING YOUR EYES
LIGHTING UP THE SKY I SEE IT COMING
YOU GOT DESIRE RUN THROUGH YOUR BRAIN
ICE IN YOUR VEINS, I SEE IT COMING**

- From Take It All *by Pop Evil*

**VISUAL STUDIO LIVE! 2017 IS INSPIRED BY
ROCK AND ROLL AND OUR LOVE OF CODE!**
Like the song Take It All, a lot of rock and roll
calls out the energy of life, and the enthusiasm
for driving great things.

Many people feel there's never been a better
time to be a software developer! Software
development changes almost every day, with
amazing new tools and technologies in the cloud,
on mobile devices, the Web at large, and on
operating systems from Windows to MacOS and
Linux. In order to be a "rock star" at your craft,
you need to have a good educational source that
builds your skills.

We're Andrew Brust, Rockford Lhotka, and Brian
Randell, and as Conference Co-Chairs for Visual
Studio Live! (VSLive!TM) Las Vegas, we'd like to
personally invite you to join us this March at
Bally's in Las Vegas, NV. We think there's a great
way to digest these changes and seize their
collective opportunity, and that's to hear about
them directly from the finest expert speakers in
the business.

We've put together an amazing lineup of sessions
on: ASP.NET Core, Web Client (HTML5, JavaScript,

Angular, and more), Mobile Client, ALM and
DevOps, Windows Client, Azure/Cloud
Computing, Software Practices, and more.

We've also got coverage on technologies like
Microsoft Visual Studio 2017 / full .NET and .NET
Core, Web API, Single Page Web Apps, Xamarin,
and TypeScript. Then there's our workshop
content, covering ALM, Cross-Platform
Distributed Application Architecture, Service-
Oriented Technologies, SQL Server 2016 and
native mobile app development. We've even got
hands-on labs on Azure apps, Angular 2, and
XAML. These sessions, workshops and hand-on
labs drill deep into the new subjects you need to
master and the fundamentals that are always
important.

Plus, Visual Studio Live! Las Vegas is co-located
with Modern Apps Live!, which means you'll have
full access to the Modern Apps content in
addition to the leading-edge and relevant
developer education you've come to expect from
Visual Studio Live!

Microsoft and its developer technologies are
poised to move into the future, and you've got to
keep up with the changes. At such a pivotal time,
Internet-based content isn't enough. Find a way
to get to Visual Studio Live! Las Vegas and get
live content and interaction with independent
experts. Your career deserves nothing less.

We hope to see you there! Rock out!

VISUAL STUDIO LIVE! CONFERENCE CO-CHAIRS

Andrew Brust
Senior Director, Product Marketing and
Evangelism, Datameer

Rockford Lhotka
CTO, Magenic

Brian A. Randell
Partner, MCW Technologies

TEN REASONS TO ATTEND
Visual Studio Live! Las Vegas

10 NEW **IT'S LIKE ROCK AND ROLL FANTASY CAMP. BUT FOR CODE.** NEW to VSLive! this year, there's another full day of learning with the Sunday **HANDS-ON LABS**. Bring your laptop and learn by doing!

9 JAM ON THE OLDIES AND THE NEW STUFF. Get relevant, immediately usable training on what's happening on the developer landscape now, and learn what's coming next to get out ahead of the competition.

8 WE SAVED YOUR SPOT. From the networking breakfasts, to evening activities, to just sitting next to someone new at lunch, you'll have the unique chance to learn from and share with your peers, all week long!

7 MEET AND GREET. What separates Visual Studio Live! from other conferences (and internet-based training) is the unparalleled access to the speakers. Get your questions answered in-between sessions, during meals and at fun evening events.

6 THE SETLIST. We offer 5 full days of educational sessions on hot topics like Modern App Development, WCF, Web API, ASP.NET, AngularJS, ALM, Visual Studio 2017, SQL Server, and more!

5 BATTLE OF THE BANDS. Our speakers include both unbiased industry experts and Microsoft insiders, so you'll hear every side of the story on the most recent software and industry updates.

4 WE STAND BY OUR NAME. VISUAL STUDIO LIVE! 2017 looks to be an exciting release with new editions with tons of new features, not to mention Microsoft's continuing venture into more open source and cross-platform development. We'll give you the information you need to understand and leverage the power of .NET, Visual Studio, ALM, and VSO today and into the future.

3 VIVA LAS CODE. Code by day and enjoy all the Strip has to offer at our headquarters, Bally's Hotel & Casino.

2 CHOICES, CHOICES, CHOICES. With over 90 sessions and workshops in a variety of tracks, you're free to choose what sessions you attend and when. You aren't bound to any one session or track! Sometimes it's hard to choose, though, so we provide all conference proceedings and any shared code for all the sessions free to attendees!

1 ROCK YOUR CODE. We're here to make you a star. For over 24 years, Visual Studio Live! has been THE trusted resource for .NET developer-focused education!

THE FUN STUFF:

VISUAL STUDIO LIVE! LAS VEGAS EVENTS

YOUR ATTENDANCE AT VISUAL STUDIO LIVE! LAS VEGAS is about learning from your peers as well as the experts; make the most of your time with us and add these events to your itinerary!

DINE-A-ROUND DINNER
Monday, March 13
7:00pm – 9:00pm
Join other conference attendees and speakers for a casual, no-host dinner and make a few new friends while enjoying the fun and delicious restaurants in or around Bally's Hotel & Casino. This is your opportunity to meet fellow attendees and start friendships that can last for the week or even longer. Attendees can break into smaller groups based on where everyone wants to dine and head off to dinner. Everyone is responsible for their own dinner.

WELCOME RECEPTION
Tuesday, March 14
4:15 – 5:30pm
All conference attendees are invited to celebrate the start of Visual Studio Live! Las Vegas at the Welcome Reception. Join us in the expo area to network with fellow conference attendees and speakers, talk with the event sponsors, enjoy complimentary drinks and hors d'oeuvres, and participate in the conference raffle.

BIRDS OF A FEATHER LUNCH
Wednesday, March 15
12:00 – 1:00pm
Enjoy lively lunchtime discussions by joining one of our table topic conversations. Tables will have a designated topic to help start discussions and interact with your fellow attendees. You may even learn a new trick or two or some great tips to take back to the office.

We will also have designated speaker tables—noted with the speaker's name. Join your favorite speaker for a lunchtime discussion or just to ask questions or clarify anything from their sessions.

Dine-A-Round Dinner

Welcome Reception

Birds of a Feather Lunch

Visual Studio LIVE!
EXPERT SOLUTIONS FOR .NET DEVELOPERS

LAS VEGAS

MARCH 13-17 2017
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Experience
The LINQ Vortex & High Roller

Wednesday, March 15
7:00 – 8:30pm

WHEN YOU COME TO VEGAS, YOU WANT TO BE ENTERTAINED, and have experiences you'd never have anywhere else, right? This event gives you that opportunity! Join us @ 7pm on Wednesday evening at The LINQ's brand-new Vortex, just a short walk from Bally's. The Vortex features a 7,000-square-foot, color-changing sculpture of lights surrounded by an observation deck where you'll enjoy cocktails, hors d'oeuvres, amazing views of the strip, PLUS the opportunity to ride the High Roller observation wheel.

About the High Roller
Redefining the iconic Las Vegas skyline, the High Roller is the world's tallest observation wheel. Topping out at 550 feet and measuring 520 feet in diameter, the High Roller eclipses both the London Eye and Singapore Flyer. Facing north and south (parallel to Las Vegas Boulevard), the wheel features 28 glass-enclosed cabins that unveil broad views of the famed-resort city in the 30 minutes it takes to complete one full revolution.

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EXPERT SOLUTIONS FOR .NET DEVELOPERS

LAS VEGAS | **MARCH 13-17 2017**
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AGENDA AT-A-GLANCE

Presented in Partnership with **Magenic**

ALM / DevOps	Cloud Computing	Database and Analytics	Mobile Client	Software Practices	Visual Studio / .NET Framework	Web Client	Web Server	Windows Client	Modern Apps Live!

START TIME	END TIME	NEW **Full Day Hands-On Labs: Sunday, March 12, 2017** (Separate entry fee required)			
7:30 AM	9:00 AM	Pre-Conference Workshop Registration • Coffee and Morning Pastries			
9:00 AM	6:00 PM	**HOL01** Full Day Hands-On Lab: Build an Azure App in a Day - *Brian Randell*		**HOL02** Full Day Hands-On Lab: AngularJS 2 - *Ted Neward*	**HOL03** Full Day Hands-On Lab: An Introduction to Building XAML Applications - *Billy Hollis*

START TIME	END TIME	**Pre-Conference Workshops: Monday, March 13, 2017** (Separate entry fee required)			
7:30 AM	9:00 AM	Pre-Conference Workshop Registration • Coffee and Morning Pastries			
9:00 AM	6:00 PM	**M01** Workshop: Native Mobile App Development for iOS, Android and Windows Using C# - *Marcel de Vries & Roy Cornelissen*	**M02** Workshop: Developer Dive into SQL Server 2016 - *Leonard Lobel*	**M03** Workshop: Distributed Cross-Platform Application Architecture - *Rockford Lhotka & Jason Bock*	**M04** Workshop: Building Modern Mobile Apps - *Brent Edwards & Kevin Ford*
7:00 PM	9:00 PM	Dine-A-Round Dinner			

START TIME	END TIME	**Day 1: Tuesday, March 14, 2017**			
7:00 AM	8:00 AM	Registration • Coffee and Morning Pastries				
8:00 AM	9:00 AM	**KEYNOTE**: Rub DevOps On It, *Donovan Brown, Senior DevOps Program Manager, US Developer Division Team, Microsoft*				
9:15 AM	10:30 AM	**T01** Essential Web Development with ASP.NET Core - *Mark Michaelis*	**T02** An Overview of the Xamarin Programming Platforms - *Laurent Bugnion*	**T03** What's New in Visual Studio 2017 - *Robert Green*	**T04** Understanding the VR/AR Landscape - *Katherine Harris*	**T05** Modern App Development: Transform How You Build Web and Mobile Software - *Rockford Lhotka*
10:45 AM	12:00 PM	**T06** Migrating to ASP.NET Core—A True Story - *Adam Tuliper*	**T07** Building Truly Universal Applications with Windows, Xamarin and MVVM - *Laurent Bugnion*	**T08** Roll Your Own Dashboard in XAML - *Billy Hollis*	**T09** Mobile DevOps with the Microsoft Stack - *Abel Wang*	**T10** Manage Distributed Teams with Visual Studio Team Services and Git - *Brian Randel*
12:00 PM	1:00 PM	Lunch				
1:00 PM	1:30 PM	Dessert Break • Visit Exhibitors				
1:30 PM	2:45 PM	**T11** An Introduction to TypeScript - *Jason Bock*	**T12** What's New for Developers in SQL Server 2016 - *Leonard Lobel*	**T13** A Developers Introduction to HoloLens - *Billy Hollis & Brian Randell*	**T14** Make PDF Work For You - *Aaron Schnarr*	**T15** Architecture: The Key to Modern App Success - *Brent Edwards*
3:00 PM	4:15 PM	**T16** Assembling the Web— A Tour of WebAssembly - *Jason Bock*	**T17** No Schema, No Problem! Introduction to Azure DocumentDB - *Leonard Lobel*	**T18** Essential C# 7.0 - *Mark Michaelis*	**T19** How to Scale .NET Apps with Distributed Caching - *Iqbal Khan*	**T20** Focus on the User Experience #FTW - *Anthony Handley*
4:15 PM	5:30 PM	Welcome Reception				

Sessions and speakers subject to change.

Continued next page

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AGENDA AT-A-GLANCE (continued)

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ALM / DevOps	Cloud Computing	Database and Analytics	Mobile Client	Software Practices	Visual Studio / .NET Framework	Web Client	Web Server	Windows Client	Modern Apps Live!

START TIME	END TIME	Day 2: Wednesday, March 15, 2017				
7:30 AM	8:00 AM	Registration • Coffee and Morning Pastries				
8:00 AM	9:15 AM	**W01** Angular 101: Part 1 - *Deborah Kurata*	**W02** Customizing Your UI for Mobile Devices: Techniques to Create a Great User Experience - *Laurent Bugnion*	**W03** What's New in Azure IaaS v2 - *Eric D. Boyd*	**W04** Tactical DevOps with VSTS - *Brian Randell*	**W05** DevOps, Continuous Integration, the Cloud, and Docker - *Dan Nordquist*
9:30 AM	10:45 AM	**W06** Angular 101: Part 2 - *Deborah Kurata*	**W07** Windows for Makers: Raspberry Pi, Arduino & IoT - *Nick Landry*	**W08** Microservices with Azure Container Service & Service Fabric - *Vishwas Lele*	**W09** Use Visual Studio to Scale Agile in Your Enterprise - *Richard Hundhausen*	**W10** Mobile Panel - *James Montemagno, Ryan J. Salva, Kevin Ford, Rockford Lhotka*
11:00 AM	12:00 PM	GENERAL SESSION: .NET Everywhere, *James Montemagno, Principal Program Manager – Xamarin, Microsoft*				
12:00 PM	1:00 PM	Birds-of-a-Feather Lunch				
1:00 PM	1:30 PM	Dessert Break • Visit Exhibitors • Exhibitor Raffle @ 1:15pm (Must be present to win)				
1:30 PM	2:45 PM	**W11** User Authentication for ASP.NET Core MVC Applications - *Brock Allen*	**W12** Cloud Enable an Existing WPF LOB App - *Robert Green*	**W13** I'm Emotional— Using Microsoft Cognitive Services to Understand the World Around You - *Adam Tuliper*	**W14** Professional Scrum Development Using Visual Studio 2017 - *Richard Hundhausen*	**W15** C# Everywhere: How CSLA .NET Enables Amazing Cross-Platform Code Reuse - *Rockford Lhotka*
3:00 PM	4:15 PM	**W16** Securing Web APIs in ASP.NET Core - *Brock Allen*	**W17** Strike Up a Conversation with Cortana on Windows 10 - *Walt Ritscher*	**W18** Cloud Oriented Programming - *Vishwas Lele*	**W19** Introduction to Containers and Docker - *Marcel de Vries*	**W20** Coding for Quality and Maintainability - *Jason Bock*
4:30 PM	5:45 PM	**W21** ASP.NET Core 1.0 Tag Helpers - *Robert Boedigheimer*	**W22** Busy Developer's Guide to NoSQL - *Ted Neward*	W23 Practical Internet of Things for the Microsoft Developer - *Eric D. Boyd*	**W24** Using Docker on Windows in VSTS Build and Release Management - *Marcel de Vries*	**W25** Modern Mobile Development: Build a Single App For iOS & Android with Xamarin Forms - *Kevin Ford*
7:00 PM	8:30 PM	Experience The LINQ Vortex & High Roller Event				

Sessions and speakers subject to change.

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AGENDA AT-A-GLANCE (continued)

ALM / DevOps	Cloud Computing	Database and Analytics	Mobile Client	Software Practices	Visual Studio / .NET Framework	Web Client	Web Server	Windows Client	Modern Apps Live!

START TIME	END TIME	Day 3: Thursday, March 16, 2017				
7:30 AM	8:00 AM	Registration • Coffee and Morning Pastries				
8:00 AM	9:15 AM	**TH01** Debugging Your Website with Fiddler and Chrome Developer Tools - *Robert Boedigheimer*	**TH02** Busy .NET Developer's Guide to Native iOS - *Ted Neward*	**TH03** Accelerate Your Mobile App Development with Azure App Services Mobile Apps - *Brian Noyes*	**TH04** Agile: You Keep Using That Word - *Philip Japikse*	**TH05** Modern Web Development: Building Server Side Using ASP.NET Core, MVC, Web API, and Azure - *Allen Conway*
9:30 AM	10:45 AM	**TH06** I Say A "Front-end Build Pipeline", "You Say WAT!?" - *Chris Klug*	**TH07** Building Cross-Platform Business Apps with CSLA .NET - *Rockford Lhotka*	**TH08** Connect All The Things with Azure Service Bus, Notification Hubs, Event Hubs, and IoT Hubs - *Brain Noyes*	**TH09** Visualizing the Backlog with User Story Mapping - *Philip Japikse*	**TH10** Modern Web Development: Building Client Side Using TypeScript and Angular - *Allen Conway*
11:00 AM	12:15 PM	**TH11** JavaScript Patterns for the C# Developer - *Ben Hoelting*	**TH12** Building Connected and Disconnected Mobile Apps - *James Montemagno*	**TH13** Add A Conversational User Interface to Your App with the Microsoft Bot Framework - *Walt Ritscher*	**TH14** End-to-End Dependency Injection & Testable Code - *Miguel Castro*	**TH15** Cloud Panel - *Rockford Lhotka*
12:15 PM	1:45 PM	Lunch				
1:45 PM	3:00 PM	**TH16** Integrating AngularJS & ASP.NET MVC - *Miguel Castro*	**TH17** Native iOS and Android Development with C# and Xamarin - *James Montemagno*	**TH18** Introduction to R and Microsoft R Server - *James McCaffrey*	**TH19** Open Source Software for Microsoft Developers - *Rockford Lhotka*	**TH20** Universal Windows Development: UWP for PC, Tablet & Phone - *Nick Landry*
3:15 PM	4:30 PM	**TH21** Increase Website Performance and Search with Lucene.Net Indexing - *Ben Hoelting*	**TH22** Building Cross-Platform C# Apps with a Shared UI Using Xamarin.Forms - *Nick Landry*	**TH23** Introduction to Azure Machine Learning - *James McCaffrey*	**TH24** SOLID— The Five Commandments of Good Software - *Chris Klug*	**TH25** Using All That Data: Power BI to the Rescue - *Scott Diehl*

START TIME	END TIME	Post-Conference Workshops: Friday, March 17, 2017 (Separate entry fee required)			
7:30 AM	8:00 AM	Post-Conference Workshop Registration • Coffee and Morning Pastries			
8:00 AM	5:00 PM	**F01** Workshop: Service Oriented Technologies—Designing, Developing, & Implementing WCF and the Web API - *Miguel Castro*	**F02** Workshop: Practical ASP.NET DevOps with VSTS or TFS - *Brian Randell*	**F03** Workshop: Creating Experiences for the HoloLens with Unity - *Nick Landry, Adam Tuliper*	**F04** Workshop: Modern App Deep Dive: Xamarin, Responsive Web, UWP, CSLA .NET - *Kevin Ford, Jason Bock, Brent Edwards, Allen Conway*

Sessions and speakers subject to change.

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FULL DAY HANDS-ON LABS

SUNDAY, MARCH 12, 9:00am – 6:00pm

NEW

SPACE IS LIMITED in these Sunday Pre-Conference Hands-On Labs. Additional Fee Required. Register early to reserve your spot!

HOL01 Full Day Hands-On Lab: Build an Azure App in a Day

Everyone

BRIAN RANDELL

Start the week off getting your hands dirty in this all-day, hands-on workshop. Spend the day with Brian and some friends taking an existing, responsive web site and lift and shift it to the cloud, along with its SQL Server database and other components. The website is a social site where you can invite co-workers to share updates, photos, documents, and videos from your desktop or mobile device with support for secure authenticated logins, searching, and more. You'll use Visual Studio 2015, Visual Studio Team Services, and Microsoft Azure while getting both the how and why. All the code is provided with step-by-step instructions. You can work at your own pace. You'll get the lab code, and additional Xamarin projects you can use when you get home to build and connect iOS, Android, and Universal Windows Platform apps to your Azure-hosted service.

Attendance is limited.

You will learn:
• How to move an existing .NET app to Microsoft Azure
• How to build secure cloud-hosted apps using Visual Studio 2015
• How to manage your code and development assets with Visual Studio Team Services

Attendee Requirements:
You must provide your own laptop computer for this hands-on lab.

You'll need a computer that supports Wi-Fi and can connect to a Microsoft Azure hosted virtual machine via Remote Desktop Protocol (RDP). If you're running Windows 8.1 or Windows 10, you're ready to go.

If you're running Windows 7, you'll want to make sure you're have installed the latest Remote Desktop client. You can get it at https://support.microsoft.com/en-us/kb/2923545.

You can also use a Mac running OS/X 10.7 (Lion) or later with an Intel 64-bit processor. You'll want to install the latest Microsoft Remote Desktop client from the Mac App Store. You can find it via https://itunes.apple.com/us/app/microsoft-remote-desktop/id715768417?mt=12

HOL02 Full Day Hands-On Lab: AngularJS 2

Intermediate

TED NEWARD

In the world of the Single-Page Application (SPA), one name appears over and over—AngularJS. This is a JavaScript web framework that does things a little differently and with great effect. However, there's a higher bar to getting started with AngularJS than some other JavaScript frameworks. If you don't do things the "Angular Way," it gets real tricky real quick. In this Hands-On Lab, you'll start from zero with a little TypeScript, then work up to Angular 2 and its core constructs. You'll get into how it works with components, modules, and of course the ubiquitous model/view/controller approach. Bring your laptop, a buddy, and a caffeinated beverage of your choice. Once you strap in, it's going to be an exciting hands-on, lecture/lab ride.

Attendance is limited.

Attendee Requirements:
You must provide your own laptop computer for this hands-on lab. Any development laptop with NodeJS v5.x.x (or greater) and npm v3.x.x (or greater) installed before arriving. (Check the versions by opening a command-line terminal and typing "node –v" and "npm –v".) VisualStudio Code is recommended, but not required.

HOL03 Full Day Hands-On Lab: An Introduction to Building XAML Applications

Introductory

BILLY HOLLIS

For those who have no experience or limited experience with XAML, this lab introduces the most important concepts you'll need to begin building applications. That includes fundamentals of XAML syntax, using the Visual Studio designers and editors, the composition model for putting XAML elements together, using the most important layout elements, and fundamentals of data binding and data templating. All concepts will be covered in the lecture, plus a hands-on lab session for you to practice the techniques. You can work alone or in pairs. Lab exercises will be done in Windows 10 UWP XAML, but all concepts and almost all the XAML in the exercises are compatible with Windows Presentation Foundation (WPF) as well.

Attendance is limited.

Attendee Requirements:
You must provide your own laptop computer for this hands-on lab.

Each attendee (or pair of attendees if you prefer to work as a pair) will need a Windows 10 laptop with Visual Studio 2015. A touch laptop is recommended but not required.

PRE-CONFERENCE WORKSHOPS   MONDAY, MARCH 13, 9:00am – 6:00pm

Choose from a range of content and topics by expert presenters with Visual Studio Live!
Las Vegas' Pre- and Post-Conference full day workshops.

M01 Workshop: Native Mobile App Development for iOS, Android and Windows Using C#

Introductory / Intermediate

MARCEL DE VRIES & ROY CORNELISSEN

So you need to build a mobile app, but you've been a C# developer for a long time. What are your options? Should you build a mobile app using the Web approach with HTML and Java Script? Do you need to learn objective C for iOS, or perhaps Java to build an Android app? Do you need to learn all those different languages and frameworks to build mobile apps or are there other options for you as a C# developer? Fortunately, there are other options. One that stands out is to build Native apps using C#. Xamarin makes this happen, even from your Visual Studio IDE, by providing a language projection of the native platform libraries (Android or iOS) to C# and an implementation of the .NET framework that runs on that device.

In this full day workshop, you'll walk through the process of building one app for many platforms. You'll learn as much code as possible, while keeping the uniqueness of each platform to appeal to the native users. You'll also learn the details of each platform, the app concepts of each platform, and how to build native apps for these platforms using the native libraries from C#. You'll learn how you can architect your app in such a way to share code amongst these platforms and help you get much better ROI then building three native apps using the vendor provided toolsets.

You will learn:
• How to build your first mobile apps on the different platforms with the Xamarin toolset
• About the different platforms, what makes them unique and how you can build a cross platform app
• How to maintain platform uniqueness while sharing a large chunk of your codebase

M02 Workshop: Developer Dive into SQL Server 2016

Intermediate

LEONARD LOBEL

This full-day workshop will get you up to speed on powerful features in SQL Server geared for developers. You'll rip through the most important SQL Server programmability points in this intensive demo-packed tour, including the latest capabilities introduced with SQL Server 2016.

Part 1: T-SQL Features: The workshop starts with the many enhancements made to T-SQL. You'll learn how to use table-valued parameters to marshal entire sets of rows across the network from client to server, and how to pass them between your stored procedures and UDFs. You'll find out about MERGE, a powerful DML statement that combines the capabilities of four (or more) separate operations, and INSERT OVER DML, which enhances your ability to capture change data from the OUTPUT clause of any DML statement. You'll also work with the various date and time data types, which include support for time zone awareness. Then you'll learn about the latest T-SQL windowing (OVER clause) enhancements, running and sliding aggregates, 22 new functions, the THROW statement, server-side paging, the SEQUENCE object, and DIE (drop if exists).

Part 2: What's New in SQL Server 2016: During the next segment, you'll explore many of the latest features introduced in SQL Server 2016. You'll discover new security features such as dynamic data masking, row-level security, and always encrypted. Other innovative capabilities include "stretch" database (which lets select tables in an on-premises database transparently relocate to an Azure SQL database), temporal data (which allows "time travel" to access data as it existed at any point in time), and integrated JSON support. You'll also learn about In-Memory OLTP (aka Hekaton), and the new improvements in SQL Server 2016 that help you achieve performance gains of up to 30 times by identifying those tables that can improve performance simply by implementing them as memory-optimized tables in the database.

Part 3: Beyond Relational: In this final segment, you'll examine the powerful "beyond relational" features, and start thinking outside the box with respect to the types of data you can manage with a relational database system. You'll learn about the new built-in JSON support in SQL Server 2016, and dig into FILESTREAM and FileTable and discover how you can enjoy the native ability to store large binary objects in the file system. You'll also learn about geospatial data types that help you integrate location-intelligence into the database and build several location-aware applications on top of these new data types, including a Bing Maps mash-up. You'll learn a ton of new SQL Server features in this information-packed day.

PRE-CONFERENCE WORKSHOPS (continued)

M03 Workshop: Distributed Cross-Platform Application Architecture

Intermediate

ROCKFORD LHOTKA & JASON BOCK

Distributed computing is both a pressing development concern and an age-old concept in software architecture and development. It can still be confusing and intimidating to work with systems that span multiple machines and platforms, especially with the myriad cloud-based and on-premises technologies available today. You have numerous resources at your disposal to make your distributed systems scalable, reliable, and maintainable. This workshop will cover the fundamentals of distributed computing, along with tools and frameworks you can use to build and deploy your application. You'll learn how to apply technologies such as Azure Functions, Azure Service Fabric, Signal-R, RESTful services, and more.

M04 Workshop: Building Modern Mobile Apps

Intermediate

BRENT EDWARDS & KEVIN FORD

You can use a variety of different technologies and back ends to build today's mobile applications. During this session, you'll look at how a mobile backend is created using Azure. You'll also step through the creation of several mobile clients using different development technologies including Cordova, UWP, Xamarin and native UI technologies. Finally, you'll discuss how these different development technologies stacked up against each other for our app's needs.

You will learn:
- How Azure and other cloud providers can be leveraged to create a mobile backend
- How to use different mobile technologies to create apps for Android, iOS, Windows, and web
- How these different technologies compare and in what situations they excel or are weak

POST-CONFERENCE WORKSHOPS FRIDAY, MARCH 17, 8:00AM – 5:00PM

F01 Workshop: Service Oriented Technologies—Designing, Developing, & Implementing WCF and the Web API

Introductory / Intermediate

MIGUEL CASTRO

The Service Oriented Architecture is the best way to ensure your applications are extensible, maintainable, and scalable in a volatile world filled with ever-changing demands. Decomposing your systems into smaller, loosely coupled, and more autonomous components ensures your application can continue to grow or change without having to continuously undergo rewrites or redesigns. With great power comes great responsibility; and the need for great technology and tooling. WCF is the heart of Microsoft's stack for building connected systems and loosely coupled components. ASP.NET Web API is the more recent addition to this stack in a world where REST and its interoperability power becomes more necessary and in more demand. Come learn both of these technologies and how to properly use them, apart and together. This session will teach you what a Service Oriented Architecture is and how to use WCF and Web API from the ground up, side-by-side, comparing their strengths and weaknesses along the way.

You will learn:
• About writing services using WCF
• About developing REST APIs with WebAPI
• Comparison of Microsoft's two service technologies side by side

F02 Workshop: Practical ASP.NET DevOps with VSTS or TFS

Introductory / Intermediate

BRIAN RANDELL

DevOps is the union of people, process, and product to enable continuous delivery of value for our end users. Implementing a DevOps practice in your organization is a complex multi-step process. Assuming you get organizational buy in and your team is ready to go, how can you implement it practically if you're committed to building high quality ASP.NET applications? How can you use either Visual Studio Team Services (VSTS) or Team Foundation Server (TFS) 2017 to create an effective release pipeline?

In this workshop, Brian will show you how you can use Visual Studio 2017, ASP.NET, either VSTS or TFS 2017 create an effective, automated pipeline. The day will be broken down into five sections:

• Level Set
• Plan & Track
• Develop & Test
• Release
• Monitor & Learn

The workshop will start by level-setting everyone on terms and technology. Then we'll explore four phases where development & operations can come together around the process of getting, and keeping, an ASP.NET application running smoothly. By the end of the day you'll have seen how to start with just code and end up with a fully functioning continuous delivery pipeline running either on a local TFS installation or in the cloud with VSTS.

You will learn:
• How choose VSTS or TFS for your team's toolset
• How to use the tools to increase cross-team communication
• How to build quality into every phase of your pipeline

F03 Workshop: Creating Experiences for the HoloLens with Unity

Introductory

NICK LANDRY, ADAM TULIPER

Microsoft HoloLens is the world's first self-contained, untethered head-mounted holographic computing device for Mixed Reality (MR). Mixed Reality blends 3D holographic content into your physical world, giving your holograms real-world context and scale, allowing you to interact with both digital content and the world around you. This workshop is your introduction to building 3D Mixed Reality applications and games for Windows Holographic using C#, Visual Studio and Unity. We'll explores the HoloLens and its capabilities, what makes the HoloLens unique, how it fits in the world of Windows Holographic and how to work with its three pillars of input: Gaze, Gesture, and Voice. One of the most fascinating features is spatial mapping, which is how the HoloLens understands the space around the user. We'll learn how to work with the spatial information to integrate 3D holograms with the real world. Next we'll dive into the complete development workflow, from building Mixed Reality applications with Unity, easily integrating into the Windows Holographic API, and deploying & testing our applications to the HoloLens emulator or a physical device.

Unity is the premier advanced platform for developing stunning 2D and 3D applications for all major platforms. Microsoft and Unity have partnered to provide first class support in the Unity platform for Windows 10 for free to developers, rounding out support for every major platform. This workshop takes you hands on through understanding the essential concepts in Unity, such as textures, meshes, normals, vectors, shaders, and more. We'll also work through the basics of Unity, the UI, assets, code, ways to develop, and some simple but powerful techniques to get up and running fast with Unity and start creating experiences you didn't think were possible.

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POST-CONFERENCE WORKSHOPS (continued)

You will then write code and use tools to create Windows Holographic apps that run on the HoloLens.

This is a hands on workshop. Please bring your Windows 10 computer with the following installed. Follow the latest instructions posted at https://developer.microsoft.com/en-us/windows/holographic/install_the_tools:

- Visual Studio 2015 Community Edition or higher (ensure that Tools 1.4 and Windows 10 SDK 10.0.10586 is enabled under Universal Windows App Development Tools node)
- HoloLens Emulator (optional but required to run Windows Holographic apps)
- Unity 5.5

You will learn:
- Core concepts of Unity development
- Overview of the HoloLens device and the Universal Windows Platform (UWP)
- Building 3D apps for Windows Holographic in Unity with C#
- Interacting with holograms using gaze, gestures and voice
- Using the HoloToolkit for Unity
- Deploying Windows Holographic to the HoloLens emulator or device

F04 Workshop: Modern App Deep Dive: Xamarin, Responsive Web, UWP, CSLA .NET

Intermediate

BRENT EDWARDS, KEVIN FORD, JASON BOCK, & ALLEN CONWAY

The Modern Apps Live! conference content focused a lot on the tradeoffs and choices involved in designing and building a modern app. This workshop dives deep into the technology behind those choices and the way they are used to implement the MyVote demo app used in the conference. This is a no-holds barred deep dive into use of Xamarin, Angular, ASP.NET MVC, Web API, UWP, and CSLA .NET. You will see all the gory details from the Azure app server to the mobile services to each client app technology.

Do you want to know how we achieved 100% reuse of our business logic across all these platforms? How we implemented authentication for the mobile and web apps? How we stored relational and blob data in a secure and efficient manner? All these questions and more will be answered in this workshop, delivered by the people who wrote the code and know it best.

> **"VSLIVE! IS A GREAT INTRODUCTION TO NEWEST TECHNOLOGIES/FRAMEWORKS, PLUS YOU GET TO LEARN WHAT IS ON THE MINDS OF MICROSOFT IN GENERAL. YOU GET TO MEET LIKE-MINDED PEOPLE AND GAIN INSIGHT INTO HOW OTHER DEVELOPERS WORK. AND, SEE VEGAS!"**
>
> *– Mark Bulleit, BulleIT Systems*

KEYNOTE / GENERAL SESSION

Want a front-row seat to the future of technology? Attend the keynote address and general session for Visual Studio Live! / Modern Apps Live! Las Vegas to learn what's hot on today's tech landscape and what exciting developments lie ahead for 2017 and beyond.

Tuesday, March 14, 8:00 – 9:00am
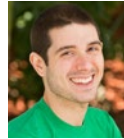
KEYNOTE:
Rub DevOps On It

Donovan Brown
Senior DevOps Program Manager,
US Developer Division Team,
Microsoft

When it comes to DevOps you have two options: implement it or lose. Donovan Brown, DevOps program manager with Microsoft, will discuss and demo how Microsoft can enable DevOps for any language targeting any platform. In this keynote, learn from Microsoft's own DevOps journey.

Wednesday, March 15, 11:00am – 12:00pm

GENERAL SESSION:
.NET Everywhere

James Montemagno
Principal Program Manager – Xamarin,
Microsoft

In a mobile first, cloud first world it is essential to have a powerful framework that is high performant and available on every platform you want to target. That framework is .NET and has expanded to every device imaginable. Whether it is server, web, mobile, wearables, or IoT, .NET is there and fully cross-platform.

When it comes to mobile, Xamarin helps C# developers become native iOS, Android, and Windows mobile app developers overnight. Now that the Xamarin platform is open source and included with Visual Studio at no additional cost, it has never been a better time to be a .NET developer -- You can start crafting beautiful native mobile applications that are truly universal today!

With .NET Core and ASP.NET Core we can now bring the power of .NET to servers, desktop, and the web and deploy our rich and engaging applications on any number of operating systems including Windows, macOS, and Linux.

Join James Montemagno in a general session focused on how you can leveraging your existing .NET and C# skills to build apps for any platform. During this session he will take you through everything you need to get started building apps and a few revolutionary tools to help learn the amazing APIs packed into each platform.

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ALM / DevOps

Shipping high quality software may be a team sport, but doing it requires herding cats. From process management to the mechanics of automation, you need to get people, process, and tools working in harmony. Good Application Lifecycle Management practices are hard. Add to that the fact that business demands more from teams, more quickly. We as an industry need to evolve. DevOps is the hot buzzword but what does it mean and how do you bring it to your organization?

In this track we've got a range of sessions to help you build software that has greater quality and can be delivered continuously if your users need it. You'll find coverage of:

• DevOps and Azure with the MS Stack

• Use Visual Studio to Scale Agile in Your Enterprise

• Scrum Development Using Visual Studio 2015

• Introduction to Containers and Docker

• Using Docker on Windows in VSTS Build and Release Management

T09 DevOps and Azure with the MS Stack

ABEL WANG

Tuesday, March 14, 10:45am – 12:00pm

DevOps is the union of people, process and our products to enable continuous delivery of value to our end users. Nowhere is this more important than the world of mobile apps. However, mobile presents its own set of unique challenges. See how Microsoft simplifies this entire process with Visual Studio Mobile Center. Visual Studio Mobile Center acts as your mission control center for mobile DevOps. With just a couple clicks implement the full DevOps stack. Continuous Integration, Continuous Testing, Continuous Delivery and Continuous Learning with integrated and easy to use dashboards..

W04 Tactical DevOps with VSTS

Introductory

BRIAN RANDELL

Wednesday, March 15, 8:00 – 9:15am

Let's spend 75 minutes digging into Visual Studio Team Services with Visual Studio 2017. No theory, just a practical drill down into the latest features you can use to take a .NET Core Web Application and get a full DevOps pipeline working on either Windows or Linux.

In the session Brian will cover:

• Storing code in a private Git repos
• Tracking work using the Scrum Template
• Creating a build that runs unit tests
• Creating a release that runs deployment tests
• Adding analytics so you know how your site is performing

You will learn:
• How to create a .NET Core Web Application
• How to manage the app development process with VSTS
• How to create a practical DevOps pipeline

W09 Use Visual Studio to Scale Agile in Your Enterprise

Intermediate

RICHARD HUNDHAUSEN

Wednesday, March 15, 9:30 – 10:45am

Scaled Agile Framework (SAFe)? Large-Scale Scrum (LeSS)? Disciplined Agile Delivery (DAD)? Scaled Professional Scrum (SPS)? Whatever framework or guidance you are using, Team Foundation Server can implement it. Microsoft knows a thing or two about using ALM tools and Agile practices and, as a result, TFS has been designed to support some of the largest teams in the world. These are the kind of software organizations that want to manage goals and requirements that span multiple teams and sprints. In this session you will see how to create and manage a portfolio of projects, teams, and backlogs and how to plan and track work across them.

You will learn:
• How to use Team Foundation Server to plan and track an enterprise-scale agile software development effort
• How to customize Team Foundation Server to fit your scaled Agile framework
• How to configure and manage multiple teams to work off of the same product backlog

SESSION DESCRIPTIONS BY TRACK (continued)

W14 Professional Scrum Development Using Visual Studio 2017

Intermediate

RICHARD HUNDHAUSEN

Wednesday, March 15, 1:30 – 2:45pm

More than 80 percent of agile projects are using Scrum—are you? Instead of sticky notes, cards, or a third party product to plan and track your next Scrum project, consider using Visual Studio. Team Foundation Server and Visual Studio Team Services offer a great Scrum process template and the related tools. From the Product Backlog to the Sprint Backlog, from the task board to the burndown, it's obvious Microsoft really knows how to build tools to support Scrum teams. In this session, you'll learn how to implement Scrum and perform release planning, sprint planning, forecasting, and work tracking. You'll use Visual Studio to refine a product backlog, forecast work, plan and manage a sprint, and achieve your definition of "done"—all using Visual Studio Team Services.

You will learn:
- How to use Visual Studio to create and refine a product backlog
- How to use Visual Studio to perform release and sprint planning
- How to use Visual Studio to track work during a sprint

W19 Introduction to Containers and Docker

Introductory / Intermediate

MARCEL DE VRIES

Wednesday, March 15, 3:00 – 4:15pm

You've probably heard of the term Docker. You might have also heard that a lot of developers think it's the best thing since sliced bread. In this session, you'll learn what containers are, what Docker is, how you can run your existing application on Docker and why this has so many advantages. This session will demystify terms like Docker for Windows, Docker on Windows, Docker Swarm, Container services, and so on. After attending this session, you'll have a full understanding of container technology, what Docker brings to the table, and how it can revolutionize the way you do software development in the future.

You will learn:
- What Containers and Docker are and how they work
- How to use Docker as part of your development routine
- How Docker brings a shift in the deployment paradigm

W24 Using Docker on Windows in VSTS Build and Release Management

Introductory / Intermediate

MARCEL DE VRIES

Wednesday, March 15, 4:30 – 5:45pm

In this session, you'll learn how to use Docker as part of your delivery pipeline and how it can speed up the delivery process. You'll learn how to build container images, how to add required features so you can deploy (for example, an ASP.NET 4.x website in a Docker container) and use this to very easily switch between environments. The session wraps up with integrating all these steps in VSTS release management, so you can make Docker part of our standard deployment pipeline

You will learn:
- How to use Docker to run ASP.NET 4.x applications on windows
- How to build Container images
- How to embed Docker in VSTS
- How Docker can revolutionize the way you develop, test, and deploy applications

TH04 Agile: You Keep Using That Word

Intermediate

PHILIP JAPIKSE

Thursday, March 16, 8:00 – 9:15am

Much like the dotcom boom when everyone declared themselves a programmer; once David Norton (Gartner Research) declared agile mainstream on August 26, 2009, you can't throw a stone without hitting someone who claims to be an "Agilista." From the proliferation of "agile" frameworks and certifications, to all of the people who decided to hang out a shingle as a coach, it can be hard to remember the essence of being agile. This session removes the fluff and hyperbole, and gets down to the roots of what it means to be agile.

You will learn:
- The goals of agile
- How to apply these goals
- How to prepare for the transition

TH09 Visualizing the Backlog with User Story Mapping

Intermediate

PHILIP JAPIKSE

Thursday, March 16, 9:30 – 10:45am

User Story Mapping is a process that visualizes your project, enhances transparency, and helps resolve scope contention. In this hands on exercise, you'll jointly create a user map, clearly defining order, minimal marketable features, and release plans.

You will learn:
- Why user story mapping matters
- How to story map
- How to build sprint/release plans from story maps

SESSION DESCRIPTIONS BY TRACK (continued)

Cloud Computing

A growing number of IT practitioners believe the future of application development is service-based and in the cloud. Cloud computing offers flexible scalability and can provide a less expensive way to host many applications. Even if you aren't ready for Microsoft Azure yet, you owe it to yourself to become familiar with cloud computing and the services approach to development.

This track includes coverage of the following:

• What's New in Azure IaaS v2

• Microservices with Azure Container Service & Service Fabric

• Using Microsoft Cognitive Services

• Practical Internet of Things for the Microsoft Developer

• Add a Conversational UI with the Microsoft Bot Framework

W03 What's New in Azure IaaS v2

Introductory / Intermediate

ERIC D. BOYD

Wednesday, March 15, 8:00 – 9:15am

If you've been working with Azure Infrastructure Services for a while, you're probably familiar with Virtual Machines running within the boundary of a Cloud Service. Affinity Groups and the imperative Service Management API, whether you call it directly, use the Classic Azure Management Portal or PowerShell. However, there's a new Azure in town with a new Management Portal. This new Azure has different management APIs powered by Azure

Resource Manager and a new set of Infrastructure Services known as IaaS v2.

This session will introduce you to what's new in Azure IaaS v2, from the new service architecture, new resources and capabilities; to the Azure Resource Manager. You'll also learn how to migrate your existing IaaS v1 resources and some of the transition challenges you may encounter.

You will learn:
• All about Azure IaaS v2
• How to work with IaaS v2 using ARM
• Migration strategies and transition challenges

W08 Microservices with Azure Container Service & Service Fabric

Intermediate

VISHWAS LELE

Wednesday, March 15, 9:30 – 10:45am

Many are increasingly seeing microservices as the architectural style of choice, especially when it comes to building cloud-based applications. In this session, you'll begin by looking at key tenets of microservices. Then you'll switch to practically applying these concepts to two related Azure Services—Azure Container Service and Azure Service Fabric.

You will learn:
• Introduction to microservices
• Lap around Azure Service Fabric (SF) & Azure Container Services (ACS)
• Guidance for choosing between SF & ACS – tradeoffs and key motivations

W13 I'm Emotional—Using Microsoft Cognitive Services to Understand the World Around You

Introductory / Intermediate

ADAM TULIPER

Wednesday, March 15, 1:30 – 2:45pm

Getting meaningful information from media was reserved for specialized companies and federal agencies for a long time, yet many applications can benefit from such technology. You can now make your apps incredibly smarter, and eliminate the potential, "I'm sorry Dave, I can't do that." Cognitive Services from Microsoft let your applications use advanced algorithms to extract information from images and videos to better understand what is in a picture, what emotions are being conveyed by the people, and more. This session will show you how to integrate with these advanced API across a variety of application types.

You will learn:
• How to analyze emotions
• How to detect objects in images
• Insight into what information is comprised in a video

W18 Cloud Oriented Programming

Intermediate

VISHWAS LELE

Wednesday, March 15, 3:00 – 4:15pm

The public cloud is tomorrow's IT backbone. As cloud vendors introduce new capabilities, the application-building process is undergoing a profound transformation. The cloud is based on key tenets such as commodity hardware, usage-based billing, scale-out, and automation—all on a global scale.

But how does the cloud affect what you do as a developer every day? What do you need to do at the code level that

SESSION DESCRIPTIONS BY TRACK (continued)

aligns you with the aforementioned tenets? This session is designed to go over tips and tricks designed to help you make more effective use of the cloud.

You will learn:
• Quick review of cloud tenets—global scale, commodity hardware, usage-based billing, scale-out, and automation
• How the cloud impacts what we do as programmers every day
• What we need to do at a program level that aligns us with the aforementioned tenets

W23 Practical Internet of Things for the Microsoft Developer

Introductory / Intermediate

ERIC D. BOYD

Wednesday, March 15, 4:30 – 5:45pm

The Internet of Things (IoT) is a hot tech buzzword right now. It ranges from wearables like the Fitbit to home automation like Nest and WeMo. Is this trend limited to a small set of companies and hobbyist hackers or is it something more broad and applicable to the masses?

This session will present a practical view of the IoT; starting by defining what the IoT is, the various required components, and optional components that can enhance IoT solutions. You'll walk through how to get started creating IoT devices, sensors and clients with Windows.

While devices are fun to build and play with, the most interesting and valuable piece of the IoT is the backend and the data. You'll create a backend for working with IoT data at massive scale using Azure's IoT Suite, and using that data to build valuable analytics and insight.

Finally, you'll learn a framework for identifying and evaluating IoT opportunities in your organizations. If you want to demystify IoT, cut through the hype, and get to

practical scenarios and applications, you will not want to miss this session.

You will learn:
• A pragmatic overview of Internet of Things
• How to use your existing Microsoft skills to create devices and sensors
• How to create massively scalable backends to handle IoT data

TH03 Accelerate Your Mobile App Development with Azure App Services Mobile Apps

Introductory / Intermediate

BRIAN NOYES

Thursday, March 16, 8:00 – 9:15am

Most mobile apps have a common set of requirements. You need to work with data on the back end, you need to authenticate your users and make authorization decisions about what they can do in the app and on the back end, you need to send notifications to your users, and you may need to work with some data offline. However, the plethora of ways you can address those requirements and the infrastructure you have to set up and integrate with can be daunting. Azure Mobile App Services gives you a straightforward, integrated approach. You can pick the building blocks you need and compose them with a single back end entry point in Azure. By building on Azure App Services, you can also share some of what you build with other kinds of apps such as Web Apps and Logic Apps. This session will give you a good understanding of what Azure Mobile App Services are all about, how they relate to what came before, what the capabilities are and how to get started leveraging them.

You will learn:
• How to work with Mobile App Data on Azure
• How to secure your mobile app with Azure App Services

• How to send notifications to users through Azure App Services

TH08 Connect All the Things with Azure Service Bus, Notification Hubs, Event Hubs, and IoT Hubs

Introductory / Intermediate

BRAIN NOYES

Thursday, March 16, 9:30 – 10:45am

There are a plethora of Azure services from which to choose, even many that seem to overlap with each other in terms of capabilities, including Azure Service Bus, Notification Hubs, Event Hubs, and IoT Hubs. This session will clear up the landscape and make sure you understand the capabilities of each of these and when you would choose to adopt one or the other. You'll learn how to connect IoT devices, client apps and back end services through these Azure services. You'll see how to easily get telemetry streams from your devices, data updates and commands from client apps, as well as how to send data and commands back to them from the server side.

You will learn:
• The differences are between Service Bus, Notification Hubs, Event Hubs, and IoT Hubs, and when to use which
• What protocols are supported for communications by the different Service Bus and various Hub services
• What code you need to interconnect your device, client and service distributed architecture

SESSION DESCRIPTIONS BY TRACK (continued)

TH13 Add A Conversational User Interface to Your App with the Microsoft Bot Framework

Introductory / Intermediate

WALT RITSCHER

Thursday, March 16, 11:00am – 12:15pm

Humans love conversations with other people. These conversations spill out into our social networks. Just look at how your family and friends use Facebook, Instagram, SMS, Slack and Twitter. Even though parts of these services are text-based, the online interaction is really a give and take conversation. Researchers around the world are looking at how to build application services that use a conversational approach. Microsoft research has their own version, the Microsoft Bot Framework. Now customers can interact with your API, check an order status, buy a pizza, in a conversational manner. This session will help you learn about bot infrastructure, how to write your own bot to communicate with a user and how to manage conversation state.

You will learn:
• How to build and deploy a bot
• How to work with conversation state
• Where the Bot Framework fits into Microsoft language SDKs

Database and Analytics

SQL Server 2016 brings a number of enhancements and changes. If that weren't enough, Big Data and Machine Learning/Data Science are becoming more mainstream and relevant to developers. Visual Studio Live! helps you contend with these changes with coverage of:

• What's new in SQL Server 2016
• Introduction to Azure DocumentDB
• Azure Machine Learning
• Introduction to R and Microsoft R Server
• Busy Developer's Guide to NoSQL

T12 What's New for Developers in SQL Server 2016

Intermediate

LEONARD LOBEL

Tuesday, March 14, 1:30 – 2:45pm

SQL Server 2016 adds many powerful features you'll learn about in this demo-packed session. You'll discover new security features such as dynamic data masking, row-level security, and always encrypted. Other innovative capabilities include "stretch" database (allow select tables in an on-premises database to be transparently relocated in Azure SQL Database), temporal data (enable "time travel" to access data as it existed at any point in time), and integrated JSON support. You'll also learn about Polybase (access Hadoop and Azure Blob Storage with T-SQL), QueryStore (maintain query plan history and performance data), and R integration (an open source data science language). Attend this session and you'll be ready for SQL Server 2016.

You will learn:
• About the new security features in SQL Server 2016, including dynamic data masking, row-level security, and always encrypted
• About the stretch database, temporal data, and JSON support added in SQL Server 2016
• More about capabilities such as Polybase, QueryStore, and R integration

T17 No Schema, No Problem! Introduction to Azure DocumentDB

Introductory

LEONARD LOBEL

Tuesday, March 14, 3:00 – 4:15pm

Like other NoSQL platforms, Azure DocumentDB supports a schema-free data model, utilizes replicas for fast write performance, and scales easily. DocumentDB also offers several unique features that make it a compelling candidate for NoSQL scenarios. This session will present an overview of Azure DocumentDB, a new massively-scalable and fully managed NoSQL database platform designed specifically for modern web and mobile applications.

The session starts by explaining NoSQL and document databases in general, and how they compare with traditional relational database platforms. Then you'll tour the many features of DocumentDB, including rich querying with SQL (that's right, you query this NoSQL database using SQL), and client development using the REST API and the many available DocumentDB SDKs. You'll also learn about the server-side programming model that lets you write fully transactional stored procedures, triggers, and user-defined functions. You'll also explore tunable consistency, scale-out partitioning, custom indexing, attachments, and more. Attend this session to get up to speed on DocumentDB.

You will learn:
• About NoSQL, document databases, and Microsoft Azure DocumentDB

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SESSION DESCRIPTIONS BY TRACK (continued)

- About the differences between NoSQL and relational database platforms, and when to choose one or the other for your next application
- About the unique NoSQL features of DocumentDB, including rich query over schema-free data, client development, server-side programming, tunable consistency, indexing, partitioning, and attachments

W22 Busy Developer's Guide to NoSQL

Intermediate

TED NEWARD

Wednesday, March 15, 4:30 – 5:45pm

The world seemed to come alive with a whole slew of "alternative" approaches to data persistence with the introduction of CouchDB, collectively called "NoSQL" and offering a "slightly different" to "radically different" view of data storage and retrieval. It's left a few developers scratching their heads, trying to figure out when to use a NoSQL database instead of a regular database, much less which NoSQL database to use. This session will examine the NoSQL ecosystem, look at the major players, how the compare and contrast, and what sort of architectural implications they have for software systems in general.

You will learn:
- What a "NoSQL" is (and why the name is just terrible)
- Why the RDBMS isn't always the answer to our data storage problems
- Explore a few NoSQLs at a high conceptual level

TH18 Introduction to R and Microsoft R Server

Introductory / Intermediate

JAMES MCCAFFREY

Thursday, March 16, 1:45 – 3:00pm

Microsoft R Server is the company's new enterprise data science platform featuring the R language. This informal and lively presentation will explain exactly what R and R Server are, and describe the relationships between R

Server, SQL Server, and Azure Machine Learning. You'll leave this session with a solid grasp of what R Server can and can't do, and have all the knowledge you need to take R Server out for a test run.

You will learn:
- Exactly what are R and Microsoft R Server
- How to get started with R
- About the relationships between R, R Server, SQL Server, and Azure

TH23 Introduction to Azure Machine Learning

Introductory / Intermediate

JAMES MCCAFFREY

Thursday, March 16, 3:15 – 4:30pm

Do you want to know the future? Microsoft Azure Machine Learning lets you create powerful prediction systems. This brisk session, will explain what Azure ML can (and can't) do, and present a complete end-to-end neural network "Hello World" example. You'll leave this session with a solid understanding of what machine learning is and have all the knowledge you need to begin using Azure ML immediately.

You will learn:
- Exactly what Azure ML can and can't do
- How to create a neural network using Azure ML
- How to use Azure ML models to make predictions

Mobile Client

Mobile clients are becoming a common vehicle to allow users' interaction with each other, their organizations, and their business applications. Mobile apps can be native client apps or mobile Web sites, and they often make use of cloud-based data and services. This track includes:

- Building Truly Universal Applications with Windows, Xamarin and MVVM
- Busy .NET Developer's Guide to Native iOS
- Building Connected and Disconnected Mobile Apps
- Building Cross-Platform Business Apps with CSLA .NET

T02 An Overview of the Xamarin Programming Platforms

Introductory

LAURENT BUGNION

Tuesday, March 14, 9:15 – 10:30am

The vast majority of code on Windows these days is developed in .NET and C#. The tools and languages provided by Microsoft are unmatched in terms of productivity to create all kinds of applications, from rich desktop suites (with WPF) to small fluid native mobile apps (with Windows Phone). The learning curve is eased by the fact that you can reuse your skills, tools, language and even design skills on each platform. The big sensation in the .NET world these days is Xamarin. This is helping developers use .NET to create fully native apps on iOS and Android. These are not hybrid apps, but compiled to binaries that are fully indistinguishable from Objective C on these platforms. They use native UI elements and create a familiar experience for the user. This session will

SESSION DESCRIPTIONS BY TRACK (continued)

also cover Xamarin Forms, an extension of the framework that even lets you share UI code for simple apps like line of business or prototypes.

You will learn:
• About Xamarin, what it does and how it works
• How to set up your development environment
• The differences between Xamarin.iOS, Xamarin.Android and Xamarin.Forms

T07 Building Truly Universal Applications with Windows, Xamarin and MVVM

Intermediate

LAURENT BUGNION

Tuesday, March 14, 10:45am – 12:00pm

With Windows 10 supporting an unprecedented number of platforms and form factors (from IoT and phones to tablets and laptops, from desktops to Xbox and SurfaceHub to even the new HoloGraphic computer HoloLens), the name "Windows 10 Universal application" is fairly accurate. To be honest, though, shouldn't a truly Universal application run on Windows 7, iOS and Android devices too?

Thankfully, this is possible thanks to a clever architecture pattern named Model-View-ViewModel, the .NET portable class libraries and the Xamarin frameworks. With these tools, you can structure an application so most of the code is shared across all the platforms. Then you can build truly native UI that adapts without any compromises to the device upon which it runs. This session will help you understand how to build such universal applications. You'll gain practical knowledge with a lot of demos. Come listen to the creator of the popular MVVM Light Toolkit how this powerful but simple library can be leveraged to help you target more users than you ever imagined.

You will learn:
• Where Xamarin shines for cross platform applications
• How to share and test even more code
• How MVVM Light helps you save time

W02 Customizing Your UI for Mobile Devices: Techniques to Create a Great User Experience

Intermediate

LAURENT BUGNION

Wednesday, March 15, 8:00 – 9:15am

In today's world, we develop our applications for a number of devices, screen sizes, form factors, and capabilities. While much of the underlying code can be shared across the platforms using frameworks like Xamarin or the Universal Windows Platform, we need to spend time on the user interface to customize and adapt it to the screen it will run on. This is a manual process which requires some experience with the visual designers, as well as techniques like design-time data, the responsive design patterns ("the 6 Rs"), and some tips to bend the visual designers to your advantage. Laurent Bugnion has 20 years of experience trying to make designers happy with HTML, VB6, Java, WinForms, XAML, Android, iOS and more. Together, we will see demos with Blend and XAML, Xamarin.Android, Xamarin.iOS, and Xamarin.Forms. You will leave the session with a lot of tricks up your sleeve to create a better user experience that delights your users.

W07 Windows for Makers: Raspberry Pi, Arduino & IoT

Introductory

NICK LANDRY

Wednesday, March 15, 9:30 – 10:45am

Did you know Windows 10 can run on a $35 Raspberry Pi 2 computer? Makers have taken the world by storm, creating countless gadgets and automated systems, connecting everything around them. This session is for makers—neophytes and veterans alike—who want to explore the capabilities of Windows 10 IoT Core to build hacks based on the Universal Windows Platform (UWP), basically

attaching electronic sensors and outputs to their Windows 10 apps. In this session, you'll learn about the tools, how to get started, the hardware you'll need, and how to build your first Windows hardware project on the Raspberry Pi. You'll also explore how you can extend your Windows 10 mobile projects with custom hardware using the Windows Arduino Remote, and how your Arduino projects can leverage Windows hardware as affordable virtual shields. Take your maker projects to the next level, and come learn valuable skills to prepare and extend your developer skills for the Internet of Things.

You will learn:
• The many offerings from Microsoft for makers and the IoT—including Windows 10 IoT Core, Arduino Remote, and Virtual Shields for Arduino
• How to build a simple electronic project with LEDs and user input with a Raspberry Pi, Windows 10 IoT Core, and the Universal Windows Platform (UWP)
• How to connect Arduino gadgets to Windows 10 apps via Arduino Remote and Virtual Shields

TH02 Busy .NET Developer's Guide to Native iOS

Intermediate

TED NEWARD

Thursday, March 16, 8:00 – 9:15am

With the recent resurgence of Apple's hardware platforms and the popularity of the iPhone and AppStore as a mobile computing platform and delivery vehicle, developing for the iPhone has suddenly become the "new hotness." This session will cover the basics of iPhone development, from the perspective of developers who have been writing code for other managed platforms (Java, .NET) before. You'll learn about the tools, the languages (Swift), Interface Builder, and more, and show how to deploy an application to the simulator that comes with XCode and to an iOS device.

SESSION DESCRIPTIONS BY TRACK (continued)

You will learn:
• Take a peek at native iOS development using XCode
• Get exposed to some of the core concepts in iOS development
• Learn just enough to build a native iOS app with nothing other than XCode

TH07 Building Cross-Platform Business Apps with CSLA .NET

Intermediate

ROCKFORD LHOTKA

Thursday, March 16, 9:30 – 10:45am

In today's world, you may write your smart client app in UWP, Xamarin, WPF, or even Windows Forms. In each case, your app probably calls back-end services and needs to interact with app servers. Some or all of your business logic runs on the client, the app server, or both—at least that would be the ideal to get a balance between user interactivity, performance, scalability, and security. The widely used open source CSLA .NET framework helps you create a reusable, scalable, and x-plat portable business layer that lets your application run on multiple types of client devices while sharing business logic between the clients and your app server. You'll get an end-to-end walkthrough of how this works and how it can benefit you during this session.

TH12 Building Connected and Disconnected Mobile Apps

Intermediate

JAMES MONTEMAGNO

Thursday, March 16, 11:00am – 12:15pm

Creating a great connected experience across multiple platforms is an essential aspect of great mobile applications. However, what happens when there is little to no connectivity, such as on an airplane or in some foreign

countries? Does your mobile app effortlessly synchronize data when the device gets back online? Your users expect and deserve this type of behavior, but developing your own cloud backend and an API across all operating environments is both time-consuming and error prone. Besides, managing multiple projects, languages, IDEs, and continuous integration processes is unsustainable in the long run. Fear not, industry leaders such as Amazon, Couchbase, and Microsoft can help solve this problem on iOS, Android, and Windows mobile devices. This session investigates the wide range of options for creating a connected and unconnected mobile experience. Come see a full implementation using the latest features of Azure App Service and mobile apps across iOS, Android, and Windows with Xamarin.

You will learn:
• The why and how of disconnected mobile applications
• About the options available to craft great mobile experiences
• How to build your first Azure connected and disconnected mobile app

TH17 Native iOS and Android Development with C# and Xamarin

Introductory

JAMES MONTEMAGNO

Thursday, March 16, 1:45 – 3:00pm

The mobile landscape continues to expand and evolve at a rapid pace. Users expect great native experiences in the palm of their hands on each and every platform. A major hurdle today is the separate programming languages and tools you need to learn and maintain for each platform. Even if you tackle the burden of learning Objective-C, Swift, or Java, you'll still have to manage multiple code bases, which can be a nightmare for any development team.

It doesn't have to be this way. You can create Android, iOS, Windows Phone, and Windows Store apps leveraging the .NET framework and everything you love about C#. In this

session, you'll learn about the technology Xamarin offers and how it works to help you leverage a shared C# code base across all mobile platforms. You'll walk you through developing, designing, deploying, and optimizing your first mobile apps for iOS, Android, and Windows from a single code base. You'll even see how to share more code with Xamarin.Forms, which lets you build native UIs for iOS, Android and Windows Phone from a single, shared C# codebase. You will walk away with the knowledge to build cross platform mobile app with C# features such as LINQ, async/await, events, and delegates and inside of both Visual Studio and Xamarin Studio.

You will learn:
• How to apply C# and Visual Studio skills for mobile development
• How to reuse code across all platform including user interface
• Architectural best practices for mobile development

TH22 Building Cross-Platform C# Apps with a Shared UI Using Xamarin.Forms

Intermediate / Advanced

NICK LANDRY

Thursday, March 16, 3:15 – 4:30pm

Building mobile apps with a native UI across multiple platforms is hard. To build an iOS app UI, you need Cocoa Touch, the UIKit and Objective-C (or Swift). To build an Android app UI, you need XML layouts, widgets and Java activities. The Windows 10 Universal App Platform lets you build XAML UIs with C# or VB as the code behind. Xamarin is a great platform from Microsoft to share non-UI code in your mobile apps, but what about the UI? This session explores how you can build cross-platform applications for iOS, Android, and Windows 10 devices using C#. Assuming you're already familiar with the fundamentals of Xamarin, you'll dive right into the design and implementation of a shared UI with Xamarin.Forms. You'll explore how Xamarin embraced XAML and extended it with its own cross-platform widgets, how to navigate and animate, and how to tailor the shared UI to take advantage of

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SESSION DESCRIPTIONS BY TRACK (continued)

platform-specific features. You'll also explore performance considerations and discuss best practices on when to choose a shared UI versus a custom UI.

You will learn:
• About the basic principles of native development for iOS, Android, and Windows 10
• How to build a shared UI using XAML and Xamarin. Forms
• How to customize a shared UI to take advantage of platform-specific features

> **"THE BREADTH OF SUBJECT AREA; THERE WAS SOMETHING IN EVERY TIMESLOT TO ENGAGE AND EDUCATE; WHETHER OR NOT IT WAS DIRECTLY USEFUL TO MY CURRENT WORK. ALSO, THE WORKSHOP WAS A STANDOUT AND TOTALLY RELEVANT TO WHAT I AM DOING RIGHT NOW."**
>
> *– Sean Brennan, Delco Automation*

Software Practices

Every developer knows that there's more to software development than just code and tooling. The practices and techniques we use to understand and analyze the problem space, to manage interpersonal communication and conflict, and other patterns and practices are key to success.

• Topics in this track include:

• End-to-End Dependency Injection & Testable Code

• SOLID—The Five Commandments of Good Software

• Open Source Software for Microsoft Developers

T14 Make PDF Work For You

Introductory

AARON SCHNARR

Tuesday, March 14, 1:30 – 2:45pm

PDF documents are common place in the workplace today. Widely used for their platform-independent viewing support, these documents can come from anywhere, and contain almost anything. However, the massive adoption rate of PDF documents is not without its downsides. Once data gets in, how do you get data out of a PDF document? How can you get a PDF document to work with your document management system, especially in regards to indexing? This session will answer these questions and more, as we take a look and some unknown, and often unused, features supported in PDF documents that can add intelligence to your digital document workflows, and make PDF work for you.

You will learn:
• How XMP metadata can be used to add workflow and business intelligence to your documents
• How File Attachments can be used to make data in your documents more accessible
• How PDF 2.0 will make this even better!

TH14 End-to-End Dependency Injection & Testable Code

Intermediate

MIGUEL CASTRO

Thursday, March 16, 11:00am – 12:15pm

Dependency Injection is one of those terms advanced programmers throw out with an expectation and assumption of full understanding on the part of the receiver. It's easy to get infatuated by a cool buzz phrase, especially when you hear so many others using it. But to truly understand something, you need to start by understanding the problem it's trying to solve. It's important to learn the concepts behind DI so you can write software that can be properly tested. In this session, you'll learn about dependency injection from concept to implementation, and use raw code samples to learn how it works and what problems it solves. You'll see a demonstration of how to write abstracted code to help you test your applications much better, and determine whether or not use a DI container. Then you'll learn what a DI container is and some of the characteristics and features it offers. Finally, you'll see implementation examples in three different platforms.

You will learn:
• How to use DI for everything
• How to completely eliminating class instantiation
• How to ensure across-the-board testability

SESSION DESCRIPTIONS BY TRACK (continued)

TH19 Open Source Software for Microsoft Developers

Intermediate

ROCKFORD LHOTKA

Thursday, March 16, 1:45 – 3:00pm

In today's world, it has become virtually impossible to write software without using open source tools, libraries, or frameworks. Even if you avoid "third party" open source components, Microsoft is open-sourcing more and more of .NET itself, so it's practically inescapable. Should you be worried? Didn't Steve Ballmer tell us open source was bad and dangerous? Well, there are things you should know about open source in terms of licensing, maintainability, and support. Many of those things you need to think about when using any code you didn't write yourself; open source or otherwise. By the end of this session, you'll understand where open source does and doesn't differ from traditional proprietary tools, libraries, and frameworks. You might still be worried, but at least you'll understand why you are worried.

You will learn:
• About OSS licensing
• Where open source does and doesn't differ from proprietary tools, libraries, and frameworks
• To embrace open source

TH24 SOLID—The Five Commandments of Good Software

Introductory / Intermediate

CHRIS KLUG

Thursday, March 16, 3:15 – 4:30pm

The SOLID principles are the five commandments of the software world. They were forgotten for years, as developers focused on JavaScript frameworks with stupid names and complicated patterns. Developers forgot the SOLID principles transcend beyond frameworks and patterns. The SOLID principles are the foundation of building good software. They're the breakers of monoliths, the decouplers of coupling, the squashers of regression bugs. One might even say they are the creators of maintainable code.

Unless you're already a believer, you need to attend this session and get on the right path. This session will take you through each one of the principles, explaining what it means, what it will do for you, and why you should stop breaking it. You will even be shown C# code that explains how they help you, and what problems will haunt you if you ignore them and are faced with their wrath.

You will learn:
• About the five principles of SOLID
• How they affect what the code they are writing
• What happens if you ignore the five principles of SOLID

Visual Studio / .NET Framework

Microsoft continues to deliver updates at a rapid pace. In 2014 and 2015 Microsoft released quarterly updates to Visual Studio and Team Foundation Server (TFS) on-premises and the Visual Studio Team Services (VSTS) service saw updates about every three weeks. In August of 2015, Microsoft released Visual Studio 2015. 2015 is an exciting release with new editions and tons of new features, not to mention Microsoft's exciting venture into more open source and cross-platform development.

Topics in this track include:
• Developer Productivity in Visual Studio "15"
• Agile: You Keep Using That Word
• Visualizing the Backlog with User Story Mapping
• Essential C# 7

T03 What's New in Visual Studio 2017

Introductory / Intermediate

ROBERT GREEN

Tuesday, March 14, 9:15 – 10:30am

Visual Studio 2017 is here, and as always, the latest release of Visual Studio is packed with new goodies. This session will provide a whirlwind tour of what's new in Visual Studio, with a heavy focus on new productivity and language features, but also covering performance updates, improvements to mobile, UWP and cloud development tooling and the new setup experience. Come and see why you want to upgrade to this latest release as soon as you can!

SESSION DESCRIPTIONS BY TRACK (continued)

You will learn:
• About the new features in Visual Studio 2017 that increase your productivity
• About the new features in Visual Studio 2017 that help you cut down on your development time
• About the new features in Visual Studio 2017 that help you write better applications

T04 Understanding the VR/AR Landscape

KATHERINE HARRIS

Tuesday, March 14, 9:15 – 10:30am

Virtual Reality (VR) and Augmented Reality (AR) are new platforms that provide deeper emersion for users than we've seen before. The popularity of VR/AR is increasing to the point of headsets being sold in your local tech shop or phone carrier store. This talk will analyze the current landscape of Virtual and Augmented Reality, highlighting different industry applications as well as exploring why more and more companies are adopting this powerful medium. The talk will also cover best practices to consider during design and development for the best user experiences. The goal of the talk is to provide a solid foundation for participants to go and develop new VR experiences.

You will learn:
• About the different kind industries that VR/AR are already being used
• How you can harness AR/VR for their business, as well as how they can create application for AR/VR
• The fundamental principles of VR design and development, to begin development

T18 Essential C# 7.0

Intermediate

MARK MICHAELIS

Tuesday, March 14, 3:00 – 4:15pm

This session will delve into all that makes up C# 7.0. You'll be introduced to new features such as pattern matching, out-variable updates, anonymous yet strongly typed tuple returns, deconstructor support, local functions, variable declaration improvements, and more. Don't miss out on this session to update your C# programming skillset to the latest C# language capabilities.

You will learn:
• About the C# 7.0 feature set
• Practical examples of when the C# 7.0 constructs are relevant
• Programming guidelines in addition to the language construct itself

T19 How to Scale .NET Apps with Distributed Caching

Everyone

IQBAL KHAN

Tuesday, March 14, 3:00 – 4:15pm

Your .NET applications may experience database or storage bottlenecks due to growth in data volume, session volume/length or size of objects. Learn how to remove bottlenecks and scale your .NET applications using distributed caching. This talk covers:

• Quick overview of scalability bottlenecks in .NET applications
• Description of distributed caching and how it solves response time issues
• Where you can use distributed caching in your application(s)
• Some important features in a distributed cache
• Hands-on examples using a distributed cache

Web Client

⊕ The browser and JavaScript provide perhaps the highest and best abstraction over every operating system, allowing developers to build Web apps apps that run across browsers, platforms and operating systems. This is possible in large part through the use of various JavaScript frameworks such as Angular, Aurelia, and many others. This track will arm you with the knowledge to be part of this next-generation Web app development wave based on JavaScript and HTML5:

• Angular 101 (double-session)
• Introduction to TypeScript
• A Tour of WebAssembly
• Debugging Your Website with Fiddler and Chrome Developer Tools
• JavaScript Patterns for the C# Developer

T11 An Introduction to TypeScript

Intermediate

JASON BOCK

Tuesday, March 14, 1:30 – 2:45pm

JavaScript is the language for web development, but it's not the only way to write code in web applications. TypeScript is a language that emits JavaScript, but provides constructs and features currently missing in JavaScript. This session will cover what TypeScript is, how it works, and why you should consider using it on future web projects.

You will learn:
• Why TypeScript is relevant for web developers
• About the TypeScript language
• How TypeScript integrates with web applications in Visual Studio

SESSION DESCRIPTIONS BY TRACK (continued)

T16 Assembling the Web— A Tour of WebAssembly

Intermediate

JASON BOCK

Tuesday, March 14, 3:00 – 4:15pm

WebAssembly is coming to JavaScript. But what exactly is it? Is it a new VM? Is it a way to create a binary version of JavaScript? Is it a new standard to get everyone to code in C/C++ for the web? This session will demystify WebAssembly, demonstrate exactly what it is, and provide insight into how this will affect JavaScript and web development in the future.

You will learn:
• What WebAssembly is all about
• About WebAssembly in action
• About this new aspect of web development

W01 Angular 101: Part 1

Introductory

DEBORAH KURATA

Wednesday, March 15, 8:00 – 9:15am

This beginner-level session introduces the .NET developer to Angular, the popular JavaScript framework for building client-side applications. In this first of two parts, you'll cover key building blocks such as modules, components, and templates. Come and get a quick start to building successful Web applications with Angular

You will learn:
• About Angular terms and concepts
• The basics of building an Angular application
• About Angular's data binding features and syntax

W06 Angular 101: Part 2

Introductory / Intermediate

DEBORAH KURATA

Wednesday, March 15, 9:30 – 10:45am

In the second of two parts, this session will cover the remaining key concepts in Angular including routing, services, observables (Reactive Extensions) and accessing data from a back-end server with http.

You will learn:
• Routing to navigate between pages
• Services for sharing data and operations
• Observables to managing asynchronous events
• Http to retrieve data from a server

TH01 Debugging Your Website with Fiddler and Chrome Developer Tools

Intermediate

ROBERT BOEDIGHEIMER

Thursday, March 16, 8:00 – 9:15am

Debugging web sites can be tricky, but tools like Chrome Developer Tools and Fiddler continue to improve. Chrome provides a great client side JavaScript debugging experience. It also shows the live DOM and is often the only way to determine exactly what style rules have been applied in CSS. The network tab gives you the basic details on requests and responses for the page, including the "initiator" column that indicates why the request was made. The tools provide profilers, audits, and the ability to throttle the network connection. They also provide basic emulation of device sizes for web pages.

Fiddler can also be extremely helpful when debugging you can manually or programmatically modify traffic. The auto responder feature can mock particular responses to web requests, or add specific delays for latency. The composer can construct specific requests that are difficult to create

with browsers directly. Fiddler is also helpful for capturing and modifying traffic from smartphones, tablets, and non-Windows platforms. Together these free tools make it much easier to troubleshoot problems on today's complex multi-device web sites.

You will learn:
• How to capture and modify requests from smartphones, tablets, and desktops
• How to troubleshoot problems with JavaScript and CSS
• How to throttle network connections to see impact on performance

TH06 I Say A "Front-end Build Pipeline", "You Say WAT!?

Intermediate

CHRIS KLUG

Thursday, March 16, 9:30 – 10:45am

For some time, web developers outside the .NET space have been managing their front-end resources in a different way than us .NET developers are accustomed. They have been using sounds—I mean tools—like Gulp and Grunt to do their bidding.

Now .NET developers can get also Gulp and Grunt their way through Visual Studio and automate a lot of the tasks you thought were impossible. This session will take you through Gulping your front end and Grunting out your projects. You'll also discuss topics such as npm, Bower, bundling and minification so you can sit the lunch table and know what your colleagues are Squeezing about. You just googled Squeeze didn't you?

You will learn:
• Why using front-end build pipelines will make a lot of things easier
• How using taskrunners like Gulp simplifies a lot of the work needed when working with client-side resources
• How to get started using a front-end build pipeline in your projects

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SESSION DESCRIPTIONS BY TRACK (continued)

TH11 JavaScript Patterns for the C# Developer

Intermediate

BEN HOELTING

Thursday, March 16, 11:00am – 12:15pm

One of the biggest learning curves for C# developers trying to learn JavaScript is getting over the lack of language features available in JavaScript. Simple keywords like Namespace, Class and Interface simply aren't available in JavaScript. So how do you create these things and do inheritance in JavaScript? After you attend this session, you'll know how. This session covers some of the key differences between JavaScript and C#. It will also discuss the Design Patterns used by experienced JavaScript developers to write large, maintainable and scalable applications.

You will learn:
• About the key differences between JavaScript and C#
• About the design patterns that are applicable to both C# and JavaScript
• The additional design patterns you'll need to write good JavaScript

> **"GREAT SESSIONS AND LOCATION, WITH HIGH QUALITY SPEAKERS. THE NETWORKING EVENTS WERE GREAT TOO."**
>
> *– Rebekah Grochowsky, Wachter, Inc.*

Web Server

ASP.NET has been Microsoft's core Web development platform since 2002. Starting with Web Forms at the very beginning, then morphing into MVC and ASP.NET Web Pages, it's been quite a ride. And just when you thought you knew the ropes, along comes ASP.NET Core 1.0, which represents a change comparable in magnitude to the move from classic Active Server Pages to ASP.NET in the first place.

The Visual Studio Live! ASP.NET track covers all this more. Come take in the content, to get current and stay that way, with coverage of the following:

• Essential Web Development with ASP.NET Core

• Migrating to ASP.NET Core

• Integrating AngularJS & ASP.NET MVC

• Increase Website Performance with Lucene.Net Indexing

T01 Essential Web Development with ASP.NET Core

Intermediate

MARK MICHAELIS

Tuesday, March 14, 9:15 – 10:30am

What's Up with the new ASP.NET Core? (Who Moved My Cheese?)

The latest release of Visual Studio is no minor upgrade from Visual Studio 2013. This is the culmination many changes, even to areas that have remained the same since the first days of Visual Studio .NET. This session will delve into the details of those changes as they relate to ASP.NET Core. This session will cover aspects like the solution structure, the addition of the wwwroot folder, unit test tool updates, config file changes, project schema changes to leverage JSON and much more. This session will jumpstart your ASP.NET Core development, and catapult you to immediate productivity instead of wallowing in the surprise of change.

You will learn:
• About the new ASP.NET Core Project/Solution structure
• About the proliferation of JSON in ASP.NET 5 projects and how to leverage that
• The overall Visual Studio solution structure and where to put your own files within the new solution structure
• About wwwroot, both its purpose and how to leverage it

T06 Migrating to ASP.NET Core— A True Story

Introductory

ADAM TULIPER

Tuesday, March 14, 10:45am – 12:00pm

When a new technology comes on the horizon, it's hard to resist the urge to want to migrate everything to it, but there are always many considerations. ASP.NET Core is an amazing new framework, which just so happens to also be one of the world's top 10 fastest frameworks clocking in at around 8X that of Node.js. This session will take you through an actual migration at Microsoft with an open source chat application that used SignalR, Entity Framework, Web Api, and MVC. The session will cover areas that gave Microsoft trouble, the process, and how they refactored and enhanced the migrated application.

You will learn:
• When you should migrate
• How to determine potential pain points
• From the issues and migration process Microsoft faced

SESSION DESCRIPTIONS BY TRACK (continued)

W11 User Authentication for ASP.NET Core MVC Applications

Introductory / Intermediate

BROCK ALLEN

Wednesday, March 15, 1:30 – 2:45pm

ASP.NET Core is here and this means you now have a fundamentally new architecture for authenticating users. This session explores what that means for your application design. This session will first look at the simple authentication scenarios, such as using a traditional password for authentication and then using external social media identity providers for single sign-on. It will also discuss why these simple approaches are not typically sufficient and why introducing your own single sign-on provider is important to your application architecture.

You will learn:
• About authenticating users with middleware
• About supporting external authentication
• About designing for single sign-on

W16 Securing Web APIs in ASP.NET Core

Introductory / Intermediate

BROCK ALLEN

Wednesday, March 15, 3:00 – 4:15pm

Traditional security for web applications involves cookies, but web APIs have a fundamentally different security model. In fact, there are security vulnerabilities when using cookies for web APIs. So what's the solution? Token-based authentication with OAuth2 works just fine. This session will help you learn about the issues, how to get and use tokens, and how ASP.NET Core helps protect your web APIs.

You will learn:
• About protecting web APIs with token-based security
• The benefits of OAuth2
• About using middleware to protect web APIs

W21 ASP.NET Core 1.0 Tag Helpers

Intermediate

ROBERT BOEDIGHEIMER

Wednesday, March 15, 4:30 – 5:45pm

ASP.NET Core 1.0 has introduced Tag Helpers, which are a much more HTML-centric approach to using server-side code to help construct HTML elements in Razor views. ASP.NET will ship with built-in tag helpers such as the "environment." This can include specific HTML, such as links to CSS or script tags, based on the level of server like development, stage, or production. Tag helpers provide specific attributes for elements like the "asp-fallback" attributes for automatic fallback to local resources when they aren't available from a CDN. The "asp-append-version" automatically used on URLs appends a hash of the file contents to allow aggressive use of expirations for caching while forcing server requests when the files are modified. Besides the many tag helpers provided directly by ASP.NET, you can also use third party tag helpers or create your own. This session will review a custom tag helper used to augment the lowly "img" tag to provide simple support for responsive images that delivers the most appropriate image for a particular device and use.

You will learn:
• How to use built in tag helpers for downloading specific JavaScript and CSS
• Compare Tag Helpers with existing HTML Helpers
• How to create custom tag helpers

TH16 Integrating AngularJS & ASP.NET MVC

Intermediate

MIGUEL CASTRO

Thursday, March 16, 1:45 – 3:00pm

Angular continues to take the market on a wild ride. Angular courses are popular and its developer base continues to grow. Google wrote Angular to have no external dependencies. In fact, many developers use it with HTML alone. But we're Microsoft developers and we know that ASP.NET MVC is the best delivery platform for HTML out there. So why not make it an equally awesome delivery platform for Angular-based apps as well? When using ASP.NET MVC, you need to know how to set Angular up with regards to modules, controllers, and services. And the truth is that not the entire site needs to be one giant Single-Page-Application. This session will show you how to design an ASP.NET MVC site to include pockets of SPA that use Angular, taking advantage of binding, routing, and even back-button support—all while remaining on the client. These techniques can also apply to any JavaScript library, not just Angular.

You will learn:
• The benefits of leveraging strengths of both technologies
• About setting up an MVC app with Angular
• How to get the two routers to play nice

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SESSION DESCRIPTIONS BY TRACK (continued)

TH21 Increase Website Performance and Search with Lucene.Net Indexing

Intermediate

BEN HOELTING

Thursday, March 16, 3:15 – 4:30pm

Lucene.NET is a file-based indexing engine written in C#. What does that mean to you? It means you can dramatically reduce round trips from your front end web server to your backend services or database. So what does that really mean? It means a really fast web site. You can configure Lucene to crawl your data and index it locally on your servers. You can then quickly conduct a search and use Linq to return data to your application. This session will introduce you to Lucene and show you how to implement it in your applications.

You will learn:
• What Lucene is and why you should use it
• The basics on how to install, configure and query Lucene
• Some advanced features of Lucene

Windows Client

There are over a billion Windows PCs in the world but, given the media attention on mobile development, it can be easy to forget that Windows remains the dominant OS. This track is focused on building Windows apps using the re-energized WPF technology as well as the newer Windows 10 Universal Windows Platform (UWP) that allows your apps to run on Windows 10 PC, phone, IoT, and other devices and platforms. This track includes coverage of the following:

• A Developers Introduction to HoloLens
• Cloud Enable an Existing WPF LOB App
• Strike Up a Conversation with Cortana on Windows 10
• Roll Your Own Dashboard in XAML

T08 Roll Your Own Dashboard in XAML

Intermediate

BILLY HOLLIS

Tuesday, March 14, 10:45am – 12:00pm

XAML is well-suited to dynamic interfaces such as dashboards. Most XAML developers are more accustomed to static user interfaces, though, and aren't experienced with creating dynamic, pluggable user interfaces. This session will present a simple architecture for a dashboard that allows pluggable panels, with options for the user to select panels and determine their position. If your business users have been clamoring for a place to put important visual components not needed by all users, this session can help get you started.

T13 A Developers Introduction to HoloLens

Introductory

BILLY HOLLIS & BRIAN RANDELL

Tuesday, March 14, 1:30 – 2:45pm

Windows Holographic and the HoloLens device promises to open new doors for developers and customers. This session will introduce you to the world of Windows Holographic and HoloLens. You'll learn what you need to get started, what programming skills you can already leverage and what you need to learn. Just as the web and WPF changed how applications were designed and built, Windows Holographic introduces additional design and development constraints. You'll see how you can develop for HoloLens even if you don't have a device. You'll see HoloLens in action and be able to enter a drawing for a chance to try HoloLens out yourself.

W12 Cloud Enable an Existing WPF LOB App

Intermediate

ROBERT GREEN

Wednesday, March 15, 1:30 – 2:45pm

Cloud technology is changing rapidly. This session will show you why and how you should modernize existing .NET client line of business applications to cloud-enable them. You'll see how to move data and services to Azure, how to secure your cloud services with Azure Active Directory, how to integrate the cloud with on-premises resources and how to create mobile apps that work with the same data and services. Take this opportunity to join the new cloud first mobile first world and walk through the steps to give your apps new life. And you can do all of this using Visual Studio and your existing code and skills.

SESSION DESCRIPTIONS BY TRACK (continued)

You will learn:
• Why and how to cloud-enable your existing .NET client line for business apps
• The steps you need to take to cloud enable your existing apps
• How to build mobile apps that work with the same data and services as existing .NET client line of business apps

W17 Strike Up a Conversation with Cortana on Windows 10

Introductory / Intermediate

WALT RITSCHER

Wednesday, March 15, 3:00 – 4:15pm

Voice and speech recognition appear everywhere in today's devices. You'll find great implementations in Amazon Alexa, Apple Siri, OK Google and Microsoft Cortana. The dream of talking to your computer, telling it what to do, and then sitting back and watching it carry out the request is now a reality. Microsoft has always had great speech APIs and improved versions of these APIs are now available in Windows 10. With Cortana, the built-in speech enabled personal assistant, users employ their voice to search and interact with applications. In this session, you'll learn how Cortana is integrated in Windows and how to add voice control and speech synthesis to your Windows app through the Speech API. See the new active integration services added in the Windows Anniversary edition.

You will learn:
• How Cortana is integrated throughout Windows 10
• How to add custom voice control within your app
• How to plug custom UI into the Cortana window

Modern Apps Live!

Modern app development brings a new set of challenges to software developers, designers, managers, architects, and team leaders. Many of these apps target multiple client platforms and technologies, including numerous mobile platforms. They rely on state-of-the-art, server-side platform capabilities. Users expect professional quality and performance in their business apps, and they expect them to be delivered on time. That means you need to apply application lifecycle processes and tools effectively, along with embedded developer and acceptance testing.

This single track conference consists of sessions that provide you with an end-to-end narrative covering all aspects of building modern apps using today's technologies. You'll learn how to manage a project lifecycle when that project includes Azure cloud services supporting clients running on iOS, Android, Windows 10 and HTML5/JavaScript.

T05 Modern App Development: Transform How You Build Web and Mobile Software

Intermediate

ROCKFORD LHOTKA

Tuesday, March 14, 9:15 – 10:30am

In today's world apps are typically responsive web or mobile apps, with cloud-based back-ends becoming more common all the time. These "modern apps" come along with new requirements where users expect a more intuitive, productive, and compelling experience

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from their computers and devices. They expect a similar app experience on their phone, their tablet, and their computer; all of which is supported by infrastructure so the app has their data and settings everywhere they go. Added to this, more dev teams are distributed or remote, requiring maturity in process and tooling around development, communication, testing, and deployment. This session will demonstrate how all these concepts fit together to enable what we call "modern app development".

T10 Manage Distributed Teams with Visual Studio Team Services and Git

Intermediate

BRIAN RANDELL

Tuesday, March 14, 10:45am – 12:00pm

Managing distributed or remote teams in an agile manner requires tools and processes to enable rich communication and coordination. Visual Studio Team Services and git are particularly good options from a tooling perspective. This session gets you started on the right foot by walking through the process of setting up a project in VSTS with git source control. You'll learn how to manage your backlog, issues, scheduling, requirements gathering, and reporting with VSTS, and how to leverage git to enable agile development effectively through Git Flow. In so doing, you'll understand how to properly handle branching, pull requests, code revisions, and tagging.

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SESSION DESCRIPTIONS BY TRACK (continued)

T15 Architecture: The Key to Modern App Success

Intermediate

BRENT EDWARDS

Tuesday, March 14, 1:30 – 2:45pm

There's a lot of technology involved when architecting and developing modern apps. Somehow you need an architecture that can support multiple disparate client operating systems and platforms, and take advantage of services hosted on Windows or Linux. Balance that against the desire to reuse as much code as possible between different client platforms and the server, and architecture becomes a serious challenge. In this session you'll see several options for modern app architecture with discussion about the pros and cons of each.

T20 Focus on the User Experience #FTW!

Intermediate

JIM BARRETT

Tuesday, March 14, 3:00 – 4:15pm

Learn some new ways of thinking that will enable you to reimagine application development.

Although quality business and data layers are critical to any application, the user sees and interacts with the application through its user interface. Modern apps in particular have set a higher bar in terms of productivity, aesthetics, platform integration, and usability by putting designer/developer collaboration at the forefront of the software creation. Each of the major device platforms has its own set of UX gestures, features, and user expectations. But do you really have to implement a different user experience for each phone, tablet, and desktop computing scenario? When should you follow guidelines & UI conventions? When does brand consistency across multiple platforms matter more? Learn how to reuse UX concepts across platforms, and when you really do need to provide a custom implementation for one or more platforms or device types.

W05 DevOps, Continuous Integration, the Cloud, and Docker

Intermediate

DAN NORDQUIST

Wednesday, March 15, 8:00 – 9:15am

Achieving rapid development is great, but to be truly effective your team also needs to integrate with operations. Ideally you'll not only have continuous integration to automate builds and unit testing, but also continuous deployment into QA or staging. The cloud makes this necessary and easier, and container-based deployment technologies such as Docker have the potential to transform how we think about delivering software to QA or production. In this session you'll learn how .NET Core enables the use of Docker, and how your CI server and process can be enhanced to result in production of deployment-ready Docker containers for on-premises, Azure, or other cloud-hosted environments.

W10 Mobile Panel

JAMES MONTEMAGNO, RYAN J. SALVA, KEVIN FORD, & ROCKFORD LHOTKA

Wednesday, March 15, 9:30 – 10:45am

You have quite the array of choices in front of you when building a mobile app. Should you build a native app for each platform? Use a pure responsive web approach? Try a hybrid approach using Cordova? Or perhaps leverage your existing C# skills by using Xamarin? Moderated by Rockford Lhotka, this panel includes James Montemagno from Xamarin, Ryan J. Salva from Microsoft's cross-platform mobile web tooling group, and Kevin Ford, Magenic's mobile Practice Lead. Bring your questions and get them answered by this amazing panel of experts on mobile technologies and platforms!

W15 C# Everywhere: How CSLA .NET Enables Amazing Cross-Platform Code Reuse

Intermediate

ROCKFORD LHOTKA

Wednesday, March 15, 1:30 – 2:45pm

In our modern app we have C# on the iOS, Android, and Windows client apps, and the services and web server are built with C#. In this session you will learn how we leveraged the open source CSLA .NET framework to reuse nearly 100% of the business logic (written in C#) across all these different platforms and scenarios. If you are going to get high levels of business logic reuse you need clear separation of concerns, as well as help abstracting away various platform and runtime differences; and in this session you'll learn how to do exactly that in your apps.

W20 Coding for Quality and Maintainability

Intermediate

JASON BOCK

Wednesday, March 15, 3:00 – 4:15pm

Cost-effective enterprise software development requires the entire team to be focused on ensuring quality is present right from the beginning and at every step in the process. Much of this work involves some form of testing to verify the application works as expected. In this session you will learn how to implement effective strategies using mocking and unit testing for your modern app code across various operating systems and platforms. Even the most basic code testing regimen provides amazing value to any software development effort, and you owe it to yourself and your organization to get started, or to continually improve your existing process.

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SESSION DESCRIPTIONS BY TRACK (continued)

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W25 Modern Mobile Development: Build a Single App For iOS & Android with Xamarin Forms

Intermediate

KEVIN FORD

Wednesday, March 15, 4:30 – 5:45pm

Learn how to reuse nearly all of your code while providing a comparable user experience on iOS and Android using Xamarin.Forms.

Xamarin.Forms provides a consistent platform on which to build mobile apps that run on iOS, Android, and UWP. In this session we'll focus entirely on iOS and Android, showing how you can reuse nearly all of your code across both platforms, while still leveraging the sensibilities of each platform when necessary. This one mobile app will leverage the same Azure-hosted services from iOS and Android, as will our responsive web and UWP apps.

TH05 Modern Web Development: Building Server Side Using ASP.NET Core, MVC, Web API, and Azure

Intermediate

ALLEN CONWAY

Thursday, March 16, 8:00 – 9:15am

Learn how to use ASP.NET MVC and Web API on the server to support a rich responsive web UI in the browser. Sure, ASP.NET MVC can be used to create traditional server-side web sites, but it can also be used to support rich client-side apps written using technologies such as Angular. The server-side technologies are the same, but how you use them is different. In this session you'll learn how to make the most of ASP.NET MVC and Web API services to support the rich Angular client app in the browser covered in the next session.

TH10 Modern Web Development: Building Client Side Using TypeScript and Angular

Intermediate

ALLEN CONWAY

Thursday, March 16, 9:30 – 10:45am

Modern web apps are often described as 'responsive web' or 'Single Page Applications (SPAs)'. These apps are built with HTML5 and JavaScript (or TypeScript) are increasingly popular both for their light weight and performant nature. These responsive apps run in a modern browser and provide the user with a rich smart client experience that is generally consistent across different browsers and platforms. In this session you will learn how to use Angular (1 and 2) to build a rich and compelling user experience in the browser, supported by the ASP.NET MVC and Web API back-end covered in the previous session.

TH15 Cloud Panel

ROCKFORD LHOTKA

Thursday, March 16, 11:00am – 12:15pm

Stay tuned for details.

TH20 Universal Windows Development: UWP for PC, Tablet & Phone

Intermediate

NICK LANDRY

Thursday, March 16, 1:45 – 3:00pm

With more than 300 million devices running Windows 10 it is clearly time for any smart client application to target Windows in addition to iOS and Android. The Universal Windows Platform (UWP) allows you to write common code that supports Windows 10 PCs, tablets and phones,

as well as Xbox and Hololens. This UWP app leverages the same client-side business logic as the Xamarin.Forms app, and the same server-side services as all the other client implementations.

TH25 Using All That Data: Power BI to the Rescue

Intermediate

SCOTT DIEHL

Thursday, March 16, 3:15 – 4:30pm

The amount of data created by modern apps is constantly increasing. Making sense out of this data, especially in the context of business users, metrics, and trends, is becoming critical. Fortunately we have tools such as PowerBI that enable the creation of interactive dashboards and reports that allow users to quickly view data, or dive deep into detail to see what's going on beneath the surface. In this session you'll learn how to use PowerBI to analyze data stored in SQL Server to enable users and decision makers to efficiently do their jobs.

CONFERENCE ADVISORY BOARD

Andrew Brust
Senior Director, Datameer
Visual Studio Live! Conference Co-Chair

Andrew Brust is Senior Director, Technical Product Marketing and Evangelism at Datameer (datameer.com) and writes a blog for ZDNet called "Big on Data" (zdnet.com/blog/big-data). Andrew is co-author of "Programming Microsoft SQL Server 2012" (Microsoft Press); an advisor to NYTECH, the New York Technology Council; co-moderator of Big On Data - New York's Data Intelligence Meetup; serves as Microsoft Regional Director and MVP; and writes the Redmond Review column for VisualStudioMagazine.com.

Michael Desmond
Editor in Chief, MSDN Magazine

Michael Desmond is editor in chief of MSDN Magazine, Microsoft's flagship publication for software developers working with Microsoft tools and technologies. A 20-year veteran in IT and technology publishing, Desmond was an editor at PC World magazine for six years before launching an editorial consultancy that did work for leading technology firms like IBM, Intel and Sun Microsystems.

Michael Domingo
Editor in Chief, Visual Studio Magazine

Michael Domingo is Editor in Chief of Visual Studio Magazine. He's been a technology journalist for more than 20 years, covering database management systems, technology certifications, and the breadth of Microsoft development and networking tools over those years. You can find him on Twitter @domingophoto.

Rockford Lhotka
CTO, Magenic
Visual Studio Live! Conference Co-Chair

Rockford Lhotka is the CTO of Magenic, and is the creator of the widely used CSLA .NET development framework. He is the author of numerous books on software development, and regularly speaks at major conferences around the world. Rockford is a Microsoft Regional Director and MVP. Magenic (magenic.com) is a company that specializes in planning, designing, building and maintaining your enterprise's most mission critical systems. For more information, go to lhotka.net.

Lafe Low
Editor, Visual Studio Live!

Lafe Low has been a technology editor and writer for more than 25 years. Most recently, he was the editor in chief of TechNet magazine. He has also held various editorial positions with Redmond magazine, CIO magazine and InfoWorld. He also launched his own magazine entitled Explore New England, and has published four editions of his guidebook The Best in Tent Camping: New England.

Brian Randell
Partner, MCW Technologies
Visual Studio Live! Conference Co-Chair

Brian A. Randell is a Partner with MCW Technologies LLC. For more than 20 years he has been building software solutions. He educates teams on Microsoft technologies via writing and training—both in-person and on demand. He's also a consultant for companies small and large, worldwide, including Fortune 100 companies like Microsoft. Brian is a passionate software craftsman who still enjoys coding as he helps teams to improve their processes from idea to shipping to production management and monitoring. In addition, he's become obsessed over the last few years with natural user interfaces and how to create compelling user experiences regardless of platform. In early 2010, he toured the world prepping Microsoft employees and Microsoft partners for the Microsoft Visual Studio 2010 launch. In 2012, he and his team built some of the first training content and demos for Microsoft using Visual Studio 2012, Team Foundation Server 2012, and Windows 8. For the 2013 release, he continued building new ALM content for use worldwide by Microsoft. He's currently a Visual Studio ALM MVP and co-author of "Professional Application Lifecycle Management with Visual Studio 2013" from Wrox Publishing. When not working, Brian enjoys spending time with his wife and two children who enjoy making him look bad on the Xbox One (with and without Kinect).

CONFERENCE SPEAKERS

Brock Allen
Consultant, Thinktecture

Currently Brock is an independent consultant specializing in .NET, web development, and web-based security with 20 years of industry experience. Brock is the co-author of many security-related open source frameworks, including IdentityServer, IdentityManager, and MembershipReboot. He also frequently posts to the ASP.NET forums, is an MVP for ASP.NET/IIS, a member of ASPInsiders, and a contributor to the ASP.NET platform.

Jim Barrett
Senior UX Designer, Magenic

Jason Bock
Practice Lead, Magenic

Jason Bock is a Practice Lead for Magenic (http://www.magenic.com) and a Microsoft MVP (C#). He has worked on a number of business applications using a diverse set of substrates and languages such as C#, .NET, and Java. He is the author of "Metaprogramming in .NET", "Applied .NET Attributes", and "CIL Programming: Under the Hood of .NET". He has written numerous articles on software development issues and has presented at a number of conferences and user groups. He is a leader of the Twin Cities Code Camp (http://www.twincitiescodecamp.com). Jason holds a Master's degree in Electrical Engineering from Marquette University. Visit his web site at http://www.jasonbock.net.

Robert Boedigheimer
Principal Systems Developer, Schwans Shared Services, LLC

Robert Boedigheimer works for Schwans Shared Services, LLC providing business solutions with web technologies and leads Robert Boedigheimer Consulting, LLC. Robert has been designing and developing web sites for the past 15 years including the early days of ASP and ASP.NET. He is a columnist for aspalliance.com, a Pluralsight Author, an ASP.NET MVP, an author, a MCPD: ASP.NET 3.5, and a 3rd degree black belt in Tae Kwon Do. Robert has spoken at industry conferences including VSLive!, Heartland Developers Conference, DevLink, DevTeach, Tulsa Tech Fest, DevWeek, DevReach, SDC, TechEd, AJAXWorld, and numerous national and international events.

Eric D. Boyd
Founder and CEO, responsiveX

Eric D. Boyd is the Founder and CEO of responsiveX, a Windows Azure MVP, and a regular speaker at national conferences, regional code camps and local user groups. He is so passionate about apps and cloud services that he founded responsiveX (www.responsiveX.com), a management and technology consultancy that helps customers create great web, mobile and client experiences, and these apps are often powered by cloud services. Eric launched his technology career almost two decades ago with a web development startup and has served in multiple roles since including developer, consultant, technology executive and business owner. You can find Eric blogging at http://www.EricDBoyd.com and on Twitter at http://twitter.com/EricDBoyd.

Donovan Brown
Senior DevOps Program Manager,
US Developer Division Team, Microsoft

Donovan Brown is a Senior DevOps Program Manager on the US Developer Division team in Microsoft, focusing on developer tools including Visual Studio Team Services and Team Foundation Server. Before joining Microsoft, Donovan spent seven years as a Process Consultant and a Certified Scrum Master. Donovan has traveled the globe helping companies in the U.S., Canada, India, Germany, and the UK develop solutions using agile practices, Visual Studio, and Team Foundation Server in industries including Communications, Health Care, Energy, and Financial Services. He is also an avid programmer, often finding ways to integrate software into his other hobbies and activities.

Laurent Bugnion
Senior Director - Europe, Valorem Consulting

Laurent works as Senior Director for IdentityMine (a Valorem Consulting company), one of the leading companies (and Gold Partner) for Microsoft technologies such as Windows Presentation Foundation, Xamarin, Windows 10, XBOX, HoloLens and generally User Experience. He is based in Zurich Switzerland.

Laurent writes for MSDN magazine and other publications, codes in Windows, WPF, Xamarin (iOS and Android), Unity, ASP.NET and his blog is on blog.galasoft.ch. He is a frequent speaker at conferences such as Microsoft MIX, TechEd, Visual Studio Live!, TechDays and many other international events. He is a Microsoft Most Valuable Professional (Windows Application Development) since 2007, a Microsoft Regional Director since 2014 and a Xamarin Most Valuable Professional since 2015. He is the author of the well-known open source framework MVVM Light for Windows, WPF, Xamarin, and of the popular Pluralsight reference courses about MVVM Light.

CONFERENCE SPEAKERS (continued)

Miguel Castro
Principal Consultant, Melvicorp LLC

Whether playing on the local Radio Shack's TRS-80 or designing systems for clients around the globe, Miguel has been writing software since he was 12 years old. He insists on staying heavily involved and up-to-date on all aspects of software application design & development, and projects that diversity onto the type of training and consulting he provides to his customers and believes that it's never just about understand the technologies, but how technologies work together. In fact, it is on this concept that Miguel based two of his Pluralsight courses, Building End-to-End Multi-Client Service Oriented Applications, which was #1 for several weeks, and Developing Extensible Sotware. Miguel is a Microsoft MVP since 2005 and when he's not consulting or training, Miguel speaks at conferences around the world, practices combining on-stage tech and comedy, and never misses a Formula 1 race. But best of all, he's the proud father of a very tech-savvy 10 year old girl, and a proud husband to the woman that homeschools her.

Allen Conway
Senior Consultant, Magenic Technologies

Allen Conway is a Senior Consultant for Magenic (www.magenic.com) that is an advocate of Microsoft .NET technologies and the Microsoft platform both professionally and personally. He enjoys the challenge and creativity behind software engineering, and hopes to give back to others in the community by speaking and on this blog at http://allen-conway-dotnet.blogspot.com.

Roy Cornelissen
Lead Consultant, Xpirit

Roy works as a software architect in the Netherlands. With over 16 years of experience in IT, Roy has designed and built many enterprise systems for customers using primarily Microsoft, Xamarin, and NServiceBus technologies.

As Mobile Lead at Xpirit, Roy is responsible for the vision and strategy for their Mobile capability. He specializes in designing and building mobile solutions for iOS, Android and Windows, using Xamarin technology. Roy co-founded the Dutch Mobile .NET Developers group, and he is an active participant in the Xamarin and NServiceBus communities. He has been awarded the Xamarin Insider, Xamarin MVP and NServiceBus Champ awards. He is a frequent speaker at software development conferences such as Microsoft TechDays, Xamarin Evolve, NSBCon, VSLive!, and Gartner Catalyst. He writes articles and blogs about his professional and personal interests.

As an avid amateur cook, Roy shoots for the (Michelin) stars and he applies the same passion for quality and creativity in his work. He loves drawing and hand lettering with good old pencil and paper and also plays the guitar in his spare time.

Marcel de Vries
CTO, Xpirit

Marcel spends most of his time helping organizations build Enterprise Applications and implementing Application Lifecycle Management (ALM) practices and tooling. Marcel works for a new start-up company called Xpirit that provides premium consulting services on ALM, Cloud, enterprise mobility and Security. His job title there is Chief Technical Manager (CTO). As CTO Marcel spends most of his time looking at how new emerging technologies can help organizations build better quality software and do this is a more productive way. Marcel has a passion for learning new technologies and teaching the things he learned on the way when applying technology to solve business problems. Marcel works as a consultant in the field of Application Lifecycle Management, Cloud application architectures and Cross platform Enterprise Mobile app development. Marcel writes for websites and magazines like: MSDN, The Architecture journal and local magazines like SDN Magazine. Marcel is a frequent speaker at industry conferences like Microsoft TechDays, Visual Studio Live!, Microsoft Tech Ed and local user group events. Marcel also spends a lot of time teaching topics like Visual Studio ALM, Windows Workflow Foundation, Xamarin Mobile app development and Web development. In his spare time he

is also an author of online courses at Pluralsight. Marcel is awarded by Microsoft the Microsoft ALM MVP award and is also a Microsoft Regional Director.

Scott Diehl
Practice Lead, Magenic Technologies

Scott Diehl is Magenic's Practice Lead for Platform and Servers, which includes Data and Analytics, Content Management and Collaboration, System Integration, and related Cloud platform technologies. A seasoned, 20-year veteran of the software industry, Scott is an experienced software professional and development manager who combines strong analytical, technical, and communication skills, making him equally capable of strategic planning, detailed implementation and effective team leadership. Scott's primary technical domain is business intelligence and data management, where he advocates strongly for business-driven approaches to data warehouse systems and guides teams to deliver recognizable value early and often. Scott holds a BA from Purdue University, and MA from Penn State University.

Brent Edwards
Principal Lead Consultant, Magenic Technologies

Brent Edwards is a Principal Lead Consultant for Magenic. He is an accomplished software developer, architect, mentor, and speaker with over 10 years of experience developing innovative solutions with Microsoft technologies. Brent has worked on projects with ASP.NET MVC and jQuery, WPF, Silverlight, and Windows 8. He is also the author of Charmed (https://github.com/brentedwards/Charmed), an open source, cross-platform MVVM support library for Windows 8 and Windows Phone 8. In addition to working with Microsoft technologies, Brent is also an accomplished Android developer whose apps have more than two million downloads. When not cranking out code, you can find him hanging out with his wife and four kids or riding his wakeboard, snowboard or mountain bike. Check out his blog at http://brentedwards.net and follow him on twitter @brentledwards.

CONFERENCE SPEAKERS (continued)

Kevin Ford
Mobile Practice Lead, Magenic

Kevin Ford is the Mobile Practice Lead with Magenic leading development with native mobile technologies, Xamarin and Cordova. For over twenty years he has worked with enterprise application development using the Microsoft stack and moved to native to follow his passion for creating innovative solutions in a quickly evolving space. Kevin is an accomplished architect and thought leader at Magenic and continues to build and expand as the mobile space changes. He works with each region to ensure that Magenic consultants have the right relationships, resources, and opportunities to advance their mobile technical skills. Kevin holds an MBA from Babson.

Robert Green
Technical Evangelist, Microsoft

RRobert Green is a Technical Evangelist in the Developer & Platform Evangelism (DPE) group at Microsoft. He focuses on Visual Studio and Windows 8 enterprise development. Robert is the host of the Visual Studio Toolbox show on Channel 9.

This is his second stint at Microsoft. From 2005 to 2010 he was a Sr. Consultant with MCW Technologies, focused on developer training. He authored or co-authored a number of Visual Studio and .NET courses for AppDev. Prior to that, in his first stint at Microsoft, he worked in Developer Tools marketing and then as the Community Lead on the Visual Basic team.

Katherine Harris
Technical Evangelist, Microsoft

Katherine Harris is a Microsoft Technical Evangelist with expertise in game, virtual and augmented reality development based out of Los Angeles. As an evangelist, Katherine is a frequent public speaker and runs a developer blog about how to develop interactive 3D applications with the Microsoft Platform.

She is the co-host of ImagineThis, a web series for students to learn about the tech industry, and The Game Dev Show on MSDN's Channel9 network. Katherine was the first woman in the world to become a Unity Certified developer, and has been developing games since college. Before becoming a game and VR/AR evangelist, Katherine worked with several Microsoft partners to port iPhone and Android applications to Windows.

Ben Hoelting
Director of Technology, Aspenware

Director of Technology for Aspenware, C# MVP and Telerik Insider. He graduated from Colorado State University in 1997 with a BS in Computer Information Systems and a Minor in Computer Science. Ben joined the IT industry in 1996 as an intern and has worked with .NET since its inception back in 2002. Over the last few years he has done some work for the Department of Defense. He left the government world and now works for Aspenware in Denver. His most recent projects include a XAML line of business application that uses the ADO.NET Entity Framework to access the backend data store. He also is working on an MS Office automation project as well as geospatial ASP.NET MVC website. Ben is a Microsoft Certified Technology Specialist (MCTS) for Web and Windows .NET 4.0. His blog is at http://www.benhblog.com and his twitter stream is at http://twitter.com/benhnet. Finally, Ben is very involved in the local .NET community and is the leader of the South Colorado .NET User Group.

Billy Hollis
Next Version Systems

Billy Hollis is an author and software developer from Nashville, Tennessee. Billy is co-author of the first book ever published on Visual Basic .NET, VB .NET Programming on the Public Beta. He has written many articles, and is a frequent speaker at conferences. He is the Regional Director of Developer Relations in Nashville for Microsoft, and runs a consulting company focusing on Microsoft.NET. You can visit his website at: www.billyhollis.com.

Richard Hundhausen
Consultant / Trainer, Accentient

Richard has over 30 years of software development experience and over 20 years of training experience. Richard is a Microsoft Regional Director, a Visual Studio ALM MVP, a certified Professional Scrum Trainer, and author of several software development books including Professional Scrum Development with Microsoft Visual Studio 2012 by Microsoft Press.

Philip Japikse
Principal Software Engineer, Strategic Data Systems, Inc.

A Principal Software Engineer with Strategic Data Systems (http://www.sds-consulting.com), international speaker, Microsoft MVP, ASPInsider, MCSD, CSM, and CSP, and a passionate member of the developer community, Phil Japikse has been working with .NET since the first betas, developing software for over 30 years, and heavily involved in the agile community since 2005. Phil is the Lead Director for the Cincinnati .NET User's Group (www.cinnug.org) and the Cincinnati Software Architect Group, co-hosts the Hallway Conversations podcast (www.hallwayconversations.com), founded the Cincinnati Day of Agile (www.dayofagile.org), and volunteers for the National Ski Patrol. Phil enjoys to continuously learn new tech and is always striving to improving his craft. You can follow Phil on twitter via www.twitter.com/skimedic and read his blog at www.skimedic.com/blog.

Iqbal Khan
President & Technology Evangelist, Alachisoft

Iqbal is Alachisoft's President and Technology Evangelist. His Master's of Computer Science from Indiana University, 25+ years of software architecture, design and development, plus deep business experience make him a great resource. He speaks frequently at .NET events including DevWeek London, TechDays France and VS Live! shows along with local .NET Code Camps and Meetups. He has written for MSDN magazine, CodeProject and Visual Studio Magazine.

CONFERENCE SPEAKERS (continued)

Chris Klug
Senior Developer, Novatrox

Chris Klug is an adrenaline loving, problem solver/creator that loves building things. He spends his days writing code and solving problems for clients at a company called Novatrox in Stockholm, and his nights sleeping. Except for the days he spends at conferences, talking about doing things he is passionate about, and the days he fills with mountain biking, kiteboarding, or RC helicopter flying.

For the last 15-something years, he has been solving problems for customers. But if he gets to choose, he'll go to the beach and kiteboard. Every time!

Deborah Kurata
President, InStep Technologies, Inc.

Deborah Kurata is cofounder of InStep Technologies Inc., a professional consulting firm that focuses on turning your business vision into reality using Microsoft .NET technologies. She has over 15 years of experience in architecting, designing, and developing successful applications. Deborah has authored several books, including the "Doing Objects in Visual Basic" series (Addison-Wesley), "Best Kept Secrets in .NET" (Apress) and "Doing Web Development: Client-Side Techniques" (Apress). Deborah speaks at conferences such as Visual Studio Live!, DevDays, and TechEd. For her work in support of software development and software developers, she has been recognized with the Microsoft Most Valuable Professional (MVP) award. After a hard day of coding and taking care of her family, Deborah enjoys blowing stuff up (on the XBox of course).

Nick Landry
Senior Technical Evangelist, Microsoft

Nick Landry (@ActiveNick) is a mobility pioneer specializing in the design and production of mobile applications for consumers and the enterprise using diverse cross-platform technologies including Windows Phone, Windows 8, iOS, Android, Mobile Web, Xamarin and PhoneGap. Nick works at Microsoft as a Senior Technical Evangelist in the New York Metro area and engages with developers, students and IT pros to help them learn, adopt and use the Microsoft developer platform to design and build the next generation of apps for Windows Phone, Windows 8 and Windows Azure. Nick is also a Nokia Developer Ambassador whose mandate is to educate and support Windows Phone developers to maximize their success. Prior to joining Microsoft, Nick spent almost two years as a Senior Product Manager for mobile, data visualization and geospatial developer tools across multiple technologies and platforms. He previously spent most his career in IT consulting and services organizations across various technical and business roles, designing, building, managing and selling innovative software solutions for some of the world's top brands and Fortune 500 companies. Known for his dynamic and engaging style, he is a frequent speaker at major software development conferences worldwide like Visual Studio Live!, CodePalousa, Prairie DevCon, HDC, DevTeach, Xamarin Evolve, TechEd, and others. Nick was a 10-year Microsoft MVP awarded on Windows Phone Development, and is a Nokia Developer Champion. With over 20 years of professional experience, Nick is a developer and software architect by trade and specializes in Cross-Platform Mobility, Location Intelligence & Geospatial development, Data Visualization, Cloud Computing and Mobile Game Development. He authored multiple technical magazine articles, white papers, and mobility courses, has been a technical editor for IT books, and holds several professional certifications. Blog: www.AgeofMobility.com – LinkedIn: www.linkedin.com/in/activenick

Vishwas Lele
Architect, AIS

Vishwas Lele is an AIS Chief Technology Officer and is responsible for the company vision and execution of creating business solutions using .NET technologies. Vishwas brings close to 20 years of experience and thought leadership to his position, and has been at AIS for 13 years. A noted industry speaker and author, Vishwas is the Microsoft Regional Director for the Washington, D.C. area and a member of the Connected Systems Division Advisors group. Additionally, Vishwas has received an MVP (Most Valuable Professional) for Solution Architecture award for 2009.

Rockford Lhotka
CTO, Magenic
Visual Studio Live! Conference Co-Chair

Rockford Lhotka is the CTO of Magenic, and is the creator of the widely used CSLA .NET development framework. He is the author of numerous books on software development, and regularly speaks at major conferences around the world. Rockford is a Microsoft Regional Director and MVP. Magenic (magenic.com) is a company that specializes in planning, designing, building and maintaining your enterprise's most mission critical systems. For more information, go to lhotka.net.

Leonard Lobel
CTO, Sleek Technologies, Inc.

Leonard Lobel is the chief technology officer (CTO) and co-founder of Sleek Technologies, Inc., a New York-based development shop with an early adopter philosophy toward new technologies that services organizations ranging from small shops to high-profile clients. He is also a principal consultant at Tallan, Inc., a Microsoft Gold Certified Partner. Programming since 1979, Lenni specializes in Microsoft-based solutions, with experience that spans a variety of business domains,

CONFERENCE SPEAKERS (continued)

including publishing, financial, wholesale/retail, health care, and e-commerce. Lenni is also a Microsoft MVP for SQL Server, lead author of the MS Press book "Programming Microsoft SQL Server 2008" (currently being updated for SQL Server 2012), consultant, trainer, and frequent speaker at local user group meetings, Visual Studio Live!, SQL PASS, and other industry conferences. He can be reached at lenni.lobel@sleektech.com.

James McCaffrey
Research Software Engineer, Microsoft Research, Microsoft

James McCaffrey works for Microsoft Research in Redmond, WA. James has a Ph.D. from the University of Southern California, an M.S. in information systems from Hawaii Pacific University, a B.A. in mathematics from the University of California at Irvine, and a B.A. in psychology from California State University at Fullerton. James has worked on several key Microsoft products, including Internet Explorer and Bing, and is the Senior Contributing Editor for Microsoft's MSDN Magazine.

Mark Michaelis
Chief Software Architect, IntelliTect

Mark Michaelis (http://IntelliTect.com/Mark) is the founder of IntelliTect and serves as the Chief Technical Architect and Trainer. Since 1996, he has been a Microsoft MVP for C#, Visual Studio Team System, and the Windows SDK and in 2007 he was recognized as a Microsoft Regional Director. He also serves on several Microsoft software design review teams, including C#, the Connected Systems Division, and VSTS. Mark speaks at developer conferences and has written numerous articles and books - Essential C# 5.0 is his most recent. Mark holds a Bachelor of Arts in Philosophy from the University of Illinois and a Masters in Computer Science from the Illinois Institute of Technology. When not bonding with his computer, Mark is busy with his family or training for another triathlon (having completed the Ironman in 2008). Mark lives in Spokane, Washington, with his wife Elisabeth and three children, Benjamin, Hanna and Abigail.

James Montemagno
Principal Program Manager – Xamarin Team, Microsoft

James Montemagno is a Principal Program Manager on the Xamarin team at Microsoft. He has been a .NET developer since 2005 working in a wide range of industries including game development, printer software, and web services. Prior to becoming a Principal Program Manager, James was a professional mobile developer and has now been crafting apps since 2011 with Xamarin. In his spare time he is most likely cycling around Seattle or guzzling gallons of coffee at a local coffee shop. He can be found on Twitter @JamesMontemagno and blogs code regularly on his personal blog http://www.MotzCod.es.

Ted Neward
Director, Developer Relations, Smartsheet.com

Ted Neward is a programming language, virtual machine, and enterprise-scale architect. He has written a dozen books and hundreds of articles on .NET, Java, enterprise systems, mobile development, and programming languages. He resides in the Pacific Northwest, and can be found on the Internet at www.tedneward.com, www.itrellis.com, @tedneward on Twitter, and blogs at blogs.tedneward.com.

Dan Nordquist
Architect, Magenic Technologies

Dan Nordquist is a developer, writer, and speaker, well-versed in a broad range of topics. Working largely in the Microsoft stack, but a big believer in new ideas and open technology, Dan's spent two decades solving problems, leading projects, building teams, and writing code for organizations both local and global. Dan's presentations generally target a wide audience, engaging both beginners and experts with immediately useful insight.

Brian Noyes
CTO, Solliance

Brian Noyes is CTO and Architect at Solliance. Brian is a Microsoft Regional Director and MVP, and specializes in rich client technologies including XAML and HTML 5, as well as building the services that back them with WCF and ASP.NET Web API. Brian has authored several books including Developer's Guide to Microsoft Prism 4, Data Binding with Windows Forms 2.0, and Smart Client Deployment with ClickOnce. He publishes articles frequently in a variety of publications and speaks at conferences worldwide including Microsoft TechEd, Visual Studio Live!, DevTeach, and others. Brian got started programming as a hobby while flying F-14 Tomcats in the U.S. Navy, later turning his passion for software into his current career. You can follow Brian through his blog at http://briannoyes.net and Twitter @briannoyes.

Brian Randell
Partner, MCW Technologies
Visual Studio Live! Conference Co-Chair

Brian A. Randell is a Partner with MCW Technologies LLC. For more than 20 years he has been building software solutions. He educates teams on Microsoft technologies via writing and training—both in-person and on demand. He's also a consultant for companies small and large, worldwide, including Fortune 100 companies like Microsoft. Brian is a passionate software craftsman who still enjoys coding as he helps teams to improve their processes from idea to shipping to production management and monitoring. In addition, he's become obsessed over the last few years with natural user interfaces and how to create compelling user experiences regardless of platform. In early 2010, he toured the world prepping Microsoft employees and Microsoft partners for the Microsoft Visual Studio 2010 launch. In 2012, he and his team built some of the first training content and demos for Microsoft using Visual Studio 2012, Team Foundation Server 2012, and Windows 8. For the 2013 release, he

CONFERENCE SPEAKERS (continued)

continued building new ALM content for use worldwide by Microsoft. He's currently a Visual Studio ALM MVP and co-author of "Professional Application Lifecycle Management with Visual Studio 2013" from Wrox Publishing. When not working, Brian enjoys spending time with his wife and two children who enjoy making him look bad on the Xbox One (with and without Kinect).

Walt Ritscher
Staff Author, Lynda.com at LinkedIn

Walt's enthusiasm for crafting software interfaces blossomed early. Just a few days after discovering how to move pixels around a computer screen he was devouring books on the topic of computer graphics and UI design. Before long he was sharing his discoveries with other technology buffs, a lifelong pursuit that has led to teaching engagements at universities, private training companies and the international conference circuit. As a consultant he has worked with a wide spectrum of clients, including Microsoft, HP, Intel, and Intuit. He is now a staff author at Lynda.com, part of the LinkedIn family, where his content team produces hundreds of technical training courses for software developers each year. His current UI obsession revolves around the XAML APIs. You can find his blog at blog. xamlwonderland.com and visualstudioadventures.com

Ryan J. Salva
Principal Program Manager, Microsoft

Ryan is a Principal Program Manager on the Visual Studio Client Tools team at Microsoft where he looks after HTML, CSS and JavaScript development. Today, he focuses primarily on mobile app development using web technologies and Apache Cordova. However, he comes from a 14-year career in web standards development & advocacy.

Aaron Schnarr
Product Manager, ActivePDF, Inc.

Aaron Schnarr works for ActicePDF, Inc., a leading provider of PDF automation tools. As an active member of the PDF Association, he is also engaged in helping people achieve the most with their PDF documents.

Adam Tuliper
Sr. Technical Evangelist, Microsoft

Adam works as a Technical Evangelist for Microsoft. Prior to that he worked as a software architect in defense, finance, pharma, manufacturing, technology, and public sector fields over a span of 18+ years. He has a security background, and is deeply involved with web technologies.

Abel Wang
Sr. Developer Technology Specialist, Microsoft

Abel Wang is a Senior Technical Solutions Professional on the Developer Experience team in Microsoft focusing on developer tools including Visual Studio, Visual Studio Team Services and Team Foundation Server. Before joining Microsoft, Abel spent seven years as a Process Consultant and a Certified Scrum Master helping customers globally develop solutions using agile practices and Team Foundation Server. Prior to that, Abel founded and sold his own software company. Abel is also an avid programmer and musician.

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AVIS RENT-A-CAR is offering a discount on car rental for Visual Studio Live! Las Vegas attendees. To receive the discounted rates, call Avis at 800.331.1600 and use the Avis Worldwide Discount (AWD) number D005872, or click here to make your reservation online.

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The Visual Studio Live! Las Vegas 5-Day Package is your five day all-access pass to every keynote, session, workshop and event March 13-17, 2017.

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- Pre- and Post-conference workshops
- Reception
- Networking Events
- Lunch (March 13-17)
- Laptop Computer Bag
- T-shirt with Completed Survey
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REGISTRATION PACKAGES (continued)

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The Visual Studio Live! Las Vegas Workshop Pass grants you access to one full-day workshop on either Monday, March 13 OR Friday, March 17, 2016	STANDARD THROUGH MARCH 13, 2017
	$550

REGISTRATION PACKAGES (continued)

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The Visual Studio Live! Las Vegas Hands-on Lab Pass grants you access to one full-day hands-on lab on Sunday, March 12, 2017.	EARLY BIRD THROUGH FEBRUARY 17, 2017	STANDARD THROUGH MARCH 13, 2017
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REGISTRATION PACKAGES (continued)

GROUP DISCOUNTS are available for companies who bring 3 or more people.

For question or to register your group, please call 972.304.5380

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The Visual Studio Live! Las Vegas 5-Day Group Package is for groups of 3 or more attendees from the same company registering for the 5-Day Conference Package.

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• Reception
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• Lunch (March 13-17)
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5-Day Hotel Package: $600

REGISTRATION PACKAGES (continued)

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