WHITEPAPER

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RELIABLE DATA PROTECTION ENSURES ALWAYS-ON HYPER-CONVERGED DATA CENTER

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It's no secret that every company that isn't already a software company is in the process of becoming one. Customer demand for always-on access to everything has pushed companies in even the most traditional industries toward digital transformation, which essentially involves firms reinventing themselves as technology providers in order to satisfy customers and stave off competition.

Simply attracting customers and keeping them coming back has become increasingly difficult in a world that's on 24 hours a day every day. Customers simply won't tolerate downtime. If they don't get what they want when they want it, they'll go find it somewhere else—and somebody else will provide it without delay. That's why every company has to be a software company.

Of course, digital transformation is not simple to execute. The rush to embrace a digital-first strategy has put immense pressure on corporate data centers and, by natural extension, on the IT professionals who run them. The days when systems were sufficient by being mostly available most of the time are gone. In this new digital age, data and application Availability must be always-on; nothing is more critical to customer acquisition and retention. As a result, data center infrastructure and data protection systems for backup, recovery, and business continuity are bearing the brunt of customer demand in the always-on era.

Companies looking to maximize Availability need a modern data center infrastructure with a data protection system that does more than just replicate what's on a server at a given time. Simplicity and scalability are critical. Anything less could lead to downtime, which in turn leads directly to lost revenues. Fortunately, new concepts in data center setup and data protection solutions are building a bridge to digital transformation.

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DOUBTS ABOUT UPTIME REMAIN

Although keeping systems available can literally mean the difference between life and death for companies, many IT professionals still struggle with downtime. In the recent Veeam 2017 Availability report survey of 1,000 IT pros, 80 percent said they couldn't meet business requirements for uptime. More than 60 percent said that downtime was hindering their digital transformation.

DEMAND FOR ALWAYS-ON APPLICATIONS **STRETCHES THE LIMITS OF THE TRADITIONAL DATA CENTER.**

What exists now is an Availability gap between what businesses and customers require and what IT can provide. The gap can be devastating for companies struggling to keep up with competitors who have managed to eliminate downtime. But it's not insurmountable. The key to achieving always-on applications is to marry modern data center architectures with intelligent data protection systems that use new methods of guaranteeing Availability.

THE HYPER-CONVERGED DATA CENTER EMERGES

Demand for always-on applications stretches the limits of the traditional data center. Data center administrators don't know which workload will experience a surge of user activity or when the surge might occur. Applications can be over-extended at any time, and there is no way for anybody to predict where a workload will need to run next. Requests can come from anywhere at any time.

As a result, admins have to be able to dynamically add more resources, spin up more copies of software and move resources around in the data center. In order to meet increasing demand and achieve flexibility, data centers need to have hardware and software that either is one homogenous system or acts like one. That's why hyper-convergence has become so critical in the design of the modern data center.

ENTER CONVERGED AND HYPERCONVERGED INFRASTRUCTURES

In a converged infrastructure, individual components of the data center, such as servers, storage and networking equipment, combine to form an integrated package. A hyper-converged infrastructure tightly ties together compute, storage, networking and virtualization resources in a software-controlled environment.

Converged infrastructures were an improvement over infrastructures with systems that didn't work together, but they were also limited. While they did manage to break down some functional silos by integrating systems, they also created new silos that required their own management domains. Scalability remained a problem. Convergence was merely a treatment, not a cure.

Enter hyper-convergence. With hyper-convergence, there are no single components, and there is no integration. All of the elements of the data center work together natively, eliminating the need to integrate one set of components with another. It's all one big infrastructure with no patchwork integration fixes to tie components together.

HYPER-CONVERGENCE IS AT THE HEART OF DATA CENTERS THAT CAN **KEEP UP WITH THE INCREASING DEMAND FOR ALWAYS-ON APPS.**

Hyper-convergence is at the heart of data centers that can keep up with the increasing demand for always-on apps. Data center design has changed in the new digital era as well. Data center admins used to cluster together similar apps that were likely to exchange information with each other. For instance, database workloads ran on a set of servers sitting under a particular set of network fabric in a corner of the data center, or front-end web servers worked together in an aggregated cluster. The idea was to minimize the frequency with which traffic needed to traverse the backbone of the data center network, and it worked—for a while.

But now that demands on workloads can come from anywhere at any time without warning, the old system of clustering resources is no longer workable. Management of clustered apps is just too difficult when distribution of resources to workloads has been randomized. Now, hyper-converged data center backbones are fast enough to handle data going between any random pair of systems at any time in a massive data center.

DATA PROTECTION SYSTEMS FEEL THE PRESSURE

Data protection systems, including backup and recovery, have had to adapt to the evolution of the data center. Because pieces of the data center are now scattered rather than clustered, backup apps have to be able to piece together system recovery from a data center model that mixes pieces of the recovery puzzle rather than keeping them in distinct groups.

All of this is happening at a time when data protection is more critical than it has ever been before. Downtime is simply not an option for today's app users—when is the last time Google shut down for planned downtime? It simply doesn't happen. Data protection, including backup used to be a necessary evil. IT professionals referred to the "backup tax" and shoved backup into a functional corner hoping it would never be necessary. But those were the days before uptime became synonymous with doing business.

Now, data protection is a strategic investment because a company that isn't always up and running is a company that will soon be out of business. As a result, the

demands on data protection systems have changed. Companies can no longer merely pay a "backup tax." They want to have simplicity and scalability in the environment. Uptime is of the utmost importance. No longer can data protection systems sit stale. They have to deliver simplicity and agility to match the infrastructure and the demands of the modern data center.

other, totally unrelated, companies. They may also have software running from multiple divisions of their own company. For a backup system to deliver always-on Availability, it has to understand what's happening at the virtual machine level and only aggregate together the data that the company needs.

IN A VIRTUALIZED ENVIRONMENT, COMPANIES MIGHT HAVE SOFTWARE **RUNNING FROM OTHER, TOTALLY UNRELATED, COMPANIES.**

Fortunately, some data protection systems do deliver. The hyper-converged data center, in part, makes that possible. As companies adopt faster, low-latency networks, they can distribute their backup across data centers, place copies of it where they need and have it at hand when they need it. It becomes part of the hyper-converged architecture.

BACKUP MORPHS INTO AVAILABILITY

In fact, the old terminology such as "backup systems" really doesn't do these solutions justice. They're more about Availability than backup—a concept that itself has changed as computing has evolved and data center architectures have moved with it. Virtualization has led to companies sharing data centers and systems. Data protection has had to adapt.

In a virtualized environment, companies might have software running from

This is completely different from taking a snapshot of a server, which is what backup systems have traditionally done—and which is largely worthless in a modern data center environment. Data protection systems in the modern data center have to have the ability to grab pieces of what's happening on different servers as workloads migrate from one data center, or one server, to another.

IT professionals need to know that data protection systems that run in more than one place can aggregate the data the company needs to recover. That kind of functionality is far more intelligent than taking a snapshot. After all, having something available that's useless isn't what Availability is. Without being able to go back in time specifically, IT admins are not going to be able to unwind problems.

And replication alone isn't the answer, either. It's fine when the system goes

down because of an overload or similar problem, but it can create major headaches in the case of a malware or ransomware attack. After all, replication merely recreates the state of the system at the time just before it went down, meaning it can actually copy the malware or ransomware that caused a crash and load it back onto servers. Replication reproduces everything, even if it is bad, and that's not good for Availability.

CISCO AND VEEAM HAVE THE ANSWER

In response to the need for always-on uptime, Cisco and Veeam offer both the hyper-converged data center infrastructure and the data protection system that deliver constant Availability.

customers realize the full potential of virtualization and the converged infrastructure by minimizing risk, decreasing downtime and easily adapting to business changes.

Cisco's HyperFlex system delivers the hyper-converged data center infrastructure companies need to respond to unpredictable demands for workloads. HyperFlex is scalable and easy to deploy, offering both operational simplicity and integration with existing tools and processes. It delivers on the promise of hyper-convergence, bringing data center capabilities into a single, software-defined infrastructure.

Part of Cisco's vision for the modern data center is Availability solutions from

CISCO AND VEEAM OFFER **HYPER-CONVERGED DATA CENTER INFRASTRUCTURE** AND **DATA PROTECTION SYSTEM** THAT DELIVER CONSTANT AVAILABILITY.

Veeam and Cisco UCS enable *Availability for the Always-On Enterprise*™ with cutting-edge technology for today's modern data centers. The combination of Veeam Availability Suite™ and Cisco UCS allow users to meet the most stringent recovery time and point objective (RTPO™) required for tier-1 applications; less than 15 minutes for most workloads. Veeam is the perfect companion for pre-validated Cisco UCS designs including FlexPod, FlashStack, Vblock and VSPEX. Together, Veeam and Cisco help

Veeam. Veeam's data protection systems go beyond simple snapshot and replication capabilities. Designed to be intelligent in terms of the data set they're protecting, Veeam's solutions meet customer needs by delivering recoverability with small data sets and points. Veeam offers more than 50 recovery scenarios in a data-protection solution that was designed for virtualization.

Together, the Cisco and Veeam solutions offer capabilities that do more than backup

systems—they offer application Availability for the always-on environment. HyperFlex with Veeam brings to market all-flash storage, as well as clustering, failover, and self-healing functionality, all combined with high application Availability.

All of that functionality works not just on-premises but also in remote-clustered, cloud, multi-cloud and hybrid environments. Together, Cisco and Veeam have embraced the hybrid and multi-cloud infrastructures that have become pervasive in the era of always-on computing.

DIGITAL TRANSFORMATION IS A JOURNEY

Customers won't stop demanding always-on application Availability any time soon. In fact, their demands will only grow and become more adamant. That's why digital transformation is a critical journey for almost all companies seeking to survive in this new era of competition.

And digital transformation is a journey, not a destination. It evolves, and its requirements change. Any company can become a software company, but the real trick is to continue to operate as one even as customers ratchet up their demands and competitors continue to apply pressure.

A new era in Availability is making that journey possible. The hyper-converged data center has opened up new possibilities for performance and has enabled significant changes in data center architecture. But without a data protection system to guarantee Availability, hyper-convergence might not live up to its always-on promise.

That's where backup systems have transformed into becoming Availability solutions, going beyond serving as unfortunate necessities and playing a strategic role in the data center infrastructure. These solutions have, by necessity, gone beyond offering simple snapshots and replication functionality and now deliver intelligent data protection that enables companies to meet customers' uptime demands.

Combined with the hyper-converged data center, these Availability solutions clear a path for companies toward digital transformation. At a time when uncertainty over uptime is dogging IT professionals, Cisco and Veeam are on the forefront of providing a combined solution that opens the path to digital transformation for companies of all kinds.

Find out more
https://www.veeam.com/veeam-cisco-ucs.html