

## BUYER USE CASE

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### Investment in a Cloud Storage Solution Helps Cisco Better Ride the Digital Tsunami

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## MANAGING DATA GROWTH WHILE BETTER MONETIZING INFORMATION VALUE

The continued expansion of business-critical information and rich content within extended enterprises is changing the storage dynamic in a wide range of industries and organizations. The ability to archive and extract value from this expanding universe of digital information is becoming a core business mandate. Today, IT organizations must place a high priority on boosting the efficiency and reliability of the storage environments responsible for collecting, storing, protecting, managing, and delivering this growing pool of unstructured information.

IDC wanted to see how one company, Cisco Systems, is taking aggressive steps not just to address explosive information growth but also to be in a strong position to capitalize on it. Cisco is deploying a private storage cloud based on EMC's Atmos cloud delivery platform. IDC recently spoke with Rich Harper, a storage design architect in Cisco's IT organization. We asked him about Cisco's fast-growing content assets and how the company is working to turn storage of those assets into a long-term competitive advantage rather than a drag on the business.

## CISCO'S GROWING CONTENT ASSETS: CREATING, STORING, AND USING MORE AND MORE CONTENT

Cisco Systems is a leading provider of network and IT solutions for consumers, small businesses, enterprises, and service providers around the globe. While most often associated with the sale of hardware (switches, routers, servers) and supporting software, Cisco is also a provider of video (telepresence) and collaboration (unified communications) services. Cisco also provides a broad and fast-growing range of support and training resources (text, image, and video) for its customers, partners, and employees.

According to Harper, Cisco is already a major consumer of storage. He estimates that Cisco datacenters around the world have surpassed 30 petabytes (PB) in total storage assets deployed. This includes classic business applications, product design documents, software development, and general employee information. He sees a number of developments on the horizon that make this current storage environment look small by comparison:

We're projecting that video content, over the next several years, could actually outpace all our other storage needs and capacities combined. We have a collaboration application [Show and Share] that's adding video function. We also have a Cisco studio that does training and marketing videos. When we looked at just these use cases [and that didn't even consider some other external use cases], we saw a huge tsunami of data coming at us, and we just weren't going to be able to scale using the traditional methods that we had done in the past.

We've also been looking at things like PC backups as we launch our VDI [virtual desktop interface initiative]. It's huge; in fact, it might even outstrip the video use case. All Cisco employee content that exists today on laptops, etc., would move into the cloud and be accessed centrally through smart devices, tablets, smartphones, laptops, netbooks, whatever. We need a storage environment that can deliver secure access to centralized data from anywhere on the edge and provide that access consistently across different devices.

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### **Cisco's Storage Challenge: Storing More and More for Less and Less**

In conversations with IT executives in the past year, IDC found that the top storage challenges faced by organizations like Cisco as they attempt to meet their growing content needs with existing, dispersed storage assets (e.g., file servers and standard NAS devices) include:

- Inefficient use of deployed storage assets (overprovisioned and/or underoptimized)
- Continuous need for administrator intervention (rebalancing loads, reclaiming space)
- Expensive and time-consuming deployment/upgrade/replacement cycles that slow new product/service launches
- Difficulties in extracting high-value information through integrated analytics

Harper confirmed that Cisco struggles with the same issues:

As in most things, it really is around budget. It primarily comes down to the money. We were looking at the amount of money that we were spending housing static user content, and we also had these new use cases that we knew were coming. We had things like WebEx video [and] we had TelePresence Video, which were primarily new use cases for us that we wanted to be able to archive for content.

We had a problem measuring and dealing with aged-out data based on access. At Cisco [and we think across the industry], 80% of the user content is no longer accessed 'ever' after a week. The IT team and storage environment ends up toting along this baggage [and continually backing it

up] with you as you move forward in time, and it's logarithmically growing. Today, in the normal type of allocation, usually what ends up happening is the data exists forever unless somebody does something special — deletes it, compresses it, or whatever. There's sort of a sense of entitlement that that data will live forever and no one has to pay for keeping it.

For these new content use cases, we had to do something different. We knew that we had to figure out a way to drive utilization. When I say utilization, I'm really talking about capacity, better leverage our datacenters. Like a lot of the enterprises, we're having challenges meeting the normal demand and being able to put enough storage on the floor, and in some cases, we're not even able to build new environments or even whole datacenters fast enough. We're building datacenters, and oftentimes by the time we get those completed, the capacity is already pretty much spoken for, and we outstrip its capacity in a matter of a few months.

## **CISCO SOLUTION: DEVELOP AND DEPLOY A PRIVATE STORAGE CLOUD**

While not all companies, regardless of size, are in industries experiencing exponential data growth, the scale of content growth across all companies is significant. If you haven't done so already, your organization will need to consider new approaches for dealing with data growth and active access to archive data in the very near future.

For many small and midsize businesses, this will include greater use of public cloud-based storage services for tasks such as backup, archiving, and data sharing. Larger enterprises, like Cisco, with more pressing concerns about data ownership and privacy will need to deploy new classes of storage solutions that are optimized for data ingest, storage, and access within single datacenters and across dispersed datacenters around the world.

These private cloud storage solutions use a distributed file system or object store to span multiple disk storage modules while presenting a single name space. Aggressive use of a scale-out architecture like that used in EMC's Atmos cloud make it easier for IT organizations to implement a number of best practices that can boost storage asset use, reduce operational overhead, and meet high data availability expectations.

Like many companies today, Cisco considered "the cloud" as part of its strategy for addressing new storage expectations. Harper made an important distinction about cloud that IDC often finds is overlooked:

A year and a half ago, 'cloud' was really a buzzword; it still is in a lot of ways. The challenge was that it's a buzzword that meant something different to everybody. We have a cloud computing strategy, and a lot of people get confused — cloud computing versus cloud storage. So we first had to understand the difference ourselves, and when we started this, we had to undertake a six-month academic exercise just to understand what 'cloud storage' brought to the table — how we could better optimize storage assets and how we could drive capacity utilization up.

With a single name space, we only have to provision once. We don't have to go back to the well when I need more capacity for this file system or that application. It changes the whole perspective of storage management. It makes it much, much simpler to do. You're now growing the cloud; you don't have to worry about adding additional individual assets. All you need to do is have a high watermark for your cloud and you can add more capacity to the cloud.

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## **Finding the Right Storage Cloud Solution**

Cisco's team set the following objectives for its storage cloud:

- ☒ It must provide a single, common pool of storage capacity that all Cisco groups and application development teams can use as the back-end storage pool for their information. (This objective required the use of a storage solution that supports standard file protocols such as NFS and CIFS as well as emerging object storage standards such as the REST API.)
- ☒ It must provide the ability to quickly (in minutes or hours, not weeks or months) and nondisruptively add capacity and/or throughput performance to meet unexpected or periodical spikes in specific information pools without degrading performance for other pools. (This objective required the use of a scale-out solution that provides a single name space across all modules and enables nondisruptive expansion and module replacement.)
- ☒ It must include advanced capabilities that automatically boost efficient utilization of storage assets across diverse data types. (This objective required the use of a system with advanced automated data movement and data tiering capabilities that allow for continuous and real-time movement of active and inactive content to the most cost- or performance-efficient storage tier.)
- ☒ It must provide advanced system and information management/monitoring capabilities to ensure that levels of data availability, data protection, data security, and data privacy/governance are consistent across all information pools.

This last element was critical as Harper and Cisco's IT team also committed to enabling real-time metering and chargeback for the storage cloud:

We want to go to those folks [developers and business units] and say, 'Here's a pool, and it'll grow with you — it won't go down — and we'll send you a bill every month.' It would be our first billable storage offering internally. We do plan on charging back to the users with this, and we are already in the works with a service model/portfolio, and the prices are really good. I'd say on the line of about a quarter of our traditional storage tier, so it's a significant cost savings.

Another objective was that the storage cloud deployment set new standards for administrator efficiency. An enterprise like Cisco might need 30 or more storage administrators to deal with its traditional storage requirements. For this storage cloud, Cisco wanted to manage the same amount of capacity with a couple of administrators.

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## Implementing Cisco's Storage Cloud

After a half year of defining the scope and goals of Cisco's private storage cloud, Harper and his team began to look for a solution that would help them meet their objectives:

We did an academic exercise where we looked at about 17 vendors. We did a lot of research without their knowledge; we did Web and product research on our own. We got it down to a short list of about six suppliers that we actually talked to. We invited them to come in and address our requirements. Right away, we saw the benefits of being able to further define the metadata about the content as a key requirement. Being able to build policies based on content and user metadata was very desirable.

They ultimately decided to deploy their first storage cloud on the Atmos solution from EMC. It met Cisco's requirements for flexible connectivity, nondisruptive scalability, multi-petabytes in a single name space, and advanced metadata/data management functions for information life-cycle management. Harper also commented on the importance of ease of use and ease of management in the final decision:

Atmos is very, very intuitive. It's very, very easy to use the single name space, and it had a 'single pane of glass' management structure, reporting structure. Thanks to that, we could get the initial two-node [about a petabyte] deployment up and running quickly and with minimal staff. We're estimating 1.5 operations people, 1.5 implementation people, half of a design person, and a quarter of an architect to support the launch and ongoing expansion.

## ESSENTIAL GUIDANCE

For many organizations (especially those in content-driven industries as well as cloud-based storage service providers themselves), addressing the limitations of existing storage environments requires the deployment of new classes of storage solutions (scale-out storage solutions) that are optimized for big data and often unpredictable data ingest, storage, and access. The intelligent scale-out storage capabilities of the EMC Atmos platform will make it easier for your IT organization to better support the launch of new content-intensive services for customers and internal business units. It will also make it easier to consistently implement best practices for information management that will boost asset use, reduce operational overhead, and speed time to market for new services.

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