



## Cirtas *Bluejet Storage Controller* Manages Cloud as a Peripheral

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### Management Summary

The perpetual growth of data presents an ongoing challenge – both in cost and in management complexity – for nearly every organization’s storage team. Cloud storage has received a lot of attention recently as a possible solution. But, like any service offering, it all comes down to what kind of service you will get – and what it will cost. The teaser pricing for small capacities may obscure some grating truths.

- Purchased equipment is good for several years, though the administration, maintenance, and data mobility can be painful. On the other hand, a service contract with a cloud provider is a monthly and probably escalating expense.
- Cloud storage comes with capacity fees and connection fees. The latter are incurred on both outgoing and incoming legs.
- The ability to switch cloud providers is a necessary point of customer control – but if you do this too often, you end up with the same stovepipes that plagued your local data center storage environments.
- The replication provided by cloud providers is only the first step in protecting mission critical data – and is not sufficient on its own. Disaster recovery has never been pretty. Recovery over distance tends to have more things that can go wrong. While cloud storage assures availability by retaining multiple copies and making them accessible over the Internet from anywhere – something that may seem to preclude the need for traditional backup – a realistic and robust recovery strategy is still a mandatory part of any service relationship.
- The discipline to reduce redundancy in data is not just a matter of features such as de-duplication; it is a matter of a culture of moderation and careful spending.

Cirtas Systems, based in San Jose, CA, has used the lessons from WAN optimization – the first incarnation of distributed data center operations – to guide the development of its *Bluejet Storage Controller that manages both cloud data storage and the operations involved in using that data*. The use part of the equation is important, for the cost of finding and touching a piece of information is far more than the cost of simply storing it for a decade.

Cirtas’ Bluejet is used as a local cache, endowed with some key features to make use of cloud storage (from Amazon, Iron Mountain, and others) both familiar to IT administrators and economical for the long haul. Particularly for moderately-sized companies with little time for developing and learning new IT paradigms, this duality is important. For more details about Cirtas and Bluejet, please read on.

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## Flipping the Funnel on WAN Optimization

### *Changing Uses of Information by Business*

The first wave of WAN optimization, several years ago, focused on harvesting and protecting information generation at organizational edges, such as retail stores and branch offices. Telecommunications costs were significant, as they are now. The ability to transmit new and changed data efficiently and promptly was the challenge around which systems were built.

Today, people are more impatient than ever. Information to support the right decisions is never simple, and providing it in the right time-frame, while leveraging cloud storage, involves both capacity costs and telecommunications costs.

### *Getting from There to Here*

The performance of the Internet is not that of a SAN. Enterprise-class applications do not tolerate latency or low throughput. In order for cloud storage to be viable for enterprise applications, the inherent bandwidth and latency restrictions of cloud storage must be overcome. WAN optimization did this for running application over long distances. Cirtas has designed WAN optimization technology specifically to overcome the limitations of cloud storage

The APIs offered by public clouds today are focused on files and on applications written as Web apps. Unfortunately, most businesses rely on legacy applications that have been customized over the years to support the processes that are business differentiators. They are the muscle behind the marketing. They tend to store in blocks, not files. Many of them have evolved to play on the Web and to leverage self-service and external information feeds. However, in addition, they also contain mandatory, cumbersome procedures that must be supported cleanly, consistently and in a way that meets the expectations of the IT staff charged with leveraging the Cloud paradigm.

Datacenter practices have evolved to address these problems locally using tiered storage, cache strategies, and metadata management. Cirtas leverages all three in a hardware appliance called the *Cirtas Bluejet Storage Controller*.

## Cirtas Bluejet Storage Controller

Just as the first generation of WAN optimization appliances gathered and protected local

data and optimized its transmission, the *Cirtas Bluejet Storage Controller* optimizes the transmission and thus minimizes the bulk of cloud storage – the two cost factors of cloud storage that must be controlled, if the potential for improved data center economics are to be realized. Cirtas also sees a need to make cloud storage usable in a broad enterprise context – for far more than file storage or backup.

Bluejet provides two levels of storage virtualization. First, within the appliance, data is striped, thinly provisioned, tiered, and deduplicated. Second, it is snapshotted, and the snapshots are replicated to the cloud at transfer rates up to 1 Gigabit per second. Bluejet stores data in the cloud in self-describing containers. The caching system allows aggregation of data into relatively large chunks – MBs or hundreds of KBs – for more efficient transmission to the cloud. Each packet transmitted advertises its identity and relationships to other packets. A user can point to and recover from these containers of packets in minutes in the event of a disaster recovery scenario.

Bluejet is a block device to which a file gateway can be added, if file serving is needed. It complies with data center standards and has the necessary redundancies. The cache has battery backup. The appliance<sup>1</sup> uses iSCSI and features 4 Gigabit Ethernet ports. Storage within the appliance includes RAM, 64 GB SSD (used for journaling and RAID-protected cache), and disk drives, giving the enterprise class response time that is often needed.<sup>2</sup>

**Cirtas is targeting relatively large mid-market customers with at least 10 TBs of enterprise data who want to leverage cloud storage without undue changes of existing administrative modes or undue risk.** It is suitable for primary storage for Tier 2 and 3 applications, and for all secondary storage and, of course, for archiving.

The Cirtas Bluejet Storage Controller is fully redundant within the box, eliminating single points of failure. The need for a second appliance is seldom a matter of capacity – instead, it is a matter of I/O. Like on-site storage arrays, at some point the I/O capacity of the Bluejet

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<sup>1</sup> Hardware for the Bluejet Storage Controller is sourced from Dell.

<sup>2</sup> Note that cache can also be used for metadata structures that can limit the scope of discovery of cloud information to just the relevant repositories.

controller will be reached and a second system will be needed to balance the workload.

The cache capacity on the appliance is 3.5 TBs (5 TBs raw). It can be licensed to store 20 TBs of data, but can be enabled for larger capacities through software license keys. It sells for \$69,995, and is immediately available at launch from 15 resellers. Value Added Resellers also will distribute the Cirtas Bluejet, as Cirtas has a channel-only business model. 24 x 7 x 365 Professional Service support with 4-hour on-site parts replacement is available to support enterprise customers.

A 60-day free trial, during which Cirtas picks up the public cloud costs, is available. Early customers report that setup takes no more than two hours, according to Cirtas.

### **Additional Features**

Operational optimization is provided by additional software functions that enhance the business value of the system.

- *Cirtas CloudCache* provides automated tiered cache across RAM, SSD, and disk drives. This allows business application and use expectations to be satisfied from locally-cached information. Caching is automatically tiered, with Bluejet determining the optimum placement of data for performance without administrator configuration.
- *Cirtas CloudLock Data Security* encrypts data, both in transit and at rest in the cloud. Even should there be a breach at a cloud storage provider, the data cannot be read.
- *Cirtas CloudReduce* deduplicates and compresses data, trimming the telecommunications costs on both transmission and return trips – both the transmission fees and the capacity charges that are levied by cloud providers.
- *Cirtas CloudSnap* provides unlimited snapshots of data. Bluejet takes consistent point-in-time snapshots of application data – something that cloud storage cannot do natively. It then stores the snapshots in the cloud but manages them locally. Meanwhile, cloud providers store more than one copy of data as part of their basic operations, providing necessary redundancy. The combination of a snapshot for logical protection (whole-ness) and the cloud process for physical protection means that data restoration is straightforward and can

be achieved without the need for a separate back-up process.

- *Cirtas CloudConnect* supports connections to multiple clouds, making it simple to spread data across geographies without having to rewrite an application to specific cloud storage vendor's APIs. It provides a standard iSCSI (block) interface to servers.
- *Cirtas CloudForecast* is a built in ROI calculator that provides detailed information about cloud storage costs. The detail is at the volume level, which is needed to guide the best strategy for each organizational situation. The ability to calculate a *ROI on the Fly* for different cloud environments allows IT administrators to use CloudConnect both tactically and strategically.

### **How This Changes Cloud Economics**

This comprehensive set of tools allows a re-thinking about how some basic storage challenges can be met. By leveraging the cloud, Bluejet is a primary storage device that eliminates the need for separate backups. Since, with Bluejet, data is already off-site and replicated, disaster recovery scenarios are easier and less expensive.

The Cirtas approach allows a cloud, or many clouds, to be used (and treated) as peripherals. Bluejet re-centers the focus from those peripherals to enterprise functionality. It supports using clouds for what they are good for, while keeping organizational operations intact.

### **Conclusion**

When examining new alternatives, it is important to keep an eye on the big picture – and on the bottom line. That Amazon recently has chosen to back Cirtas financially is a good indication of the quality of the solution approach. Check out Cirtas Bluejet to see if it fits the needs of your enterprise.



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