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Senior Manager IT  
Qualcomm*

## Qualcomm

**INDUSTRY** Information Technology

**SOLUTIONS** **Virtualization, Enterprise Platform, Modular Platform and Storage Management**  
**Hardware** — Hitachi Universal Storage Platform® V, Hitachi Adaptable Modular Storage 1000, Hitachi Adaptable Modular Storage 2500  
**Software** — Hitachi Dynamic Provisioning, Hitachi Tuning Manager, Hitachi Tiered Storage Manager  
**Services** — Remote Storage Management Services, Remote Provisioning and Remote Reporting Services provided by Hitachi Data Systems Service Operations Center; product supply and administrative services provided by Hitachi TrueNorth Channel Partner Bedrock Technology Partners



## Qualcomm Evolves Data Centers with Hitachi Virtualized Tiered Storage

For progressive industry veteran Qualcomm Incorporated, innovation and reliability are simpatico attributes for building good technology. When the wireless technology and services company needed to bolster its data centers, Hitachi Data Systems constructed a highly intelligent tiered storage environment with controller-based virtualization, dynamic “thin” provisioning and Remote Storage Management services. Based on Hitachi Universal Storage Platform® V, the Qualcomm solution delivers simplified, flexible and scalable storage and management services and is responsible for 30 percent operational and capital cost savings.

The buzz of third generation (3G) networks, mobile devices and connectivity continues to permeate the globe, while murmurs of the 4G evolution steadily grow. The era of advanced communication tools offering instant access to people, data and personal resources anywhere in the world has resoundingly arrived. At the core of this worldwide wireless wonderland is “code division multiple access” or CDMA, the high capacity, small cell radius multiplexing technology pioneered by Qualcomm for mobile communications.

Founded in 1985, Qualcomm began designing satellite locating and messaging services, as well as integrated circuits used in digital radio communications. Today, Qualcomm

plays a vital role in developing technologies that move the industry forward, including chipsets and software used in network base stations, handsets, cellular modems and other cutting-edge gadgets indispensable to the millennium’s fast paced culture.

Topping many prestigious “best” business lists, Qualcomm is headquartered in San Diego and employs over 16,000 people worldwide across 146 locations. With a major business focus on inventing and innovating new wireless technologies and capabilities, the company believes research and development are the pillars for harnessing the power of imagination and helping customers and partners realize their potential.

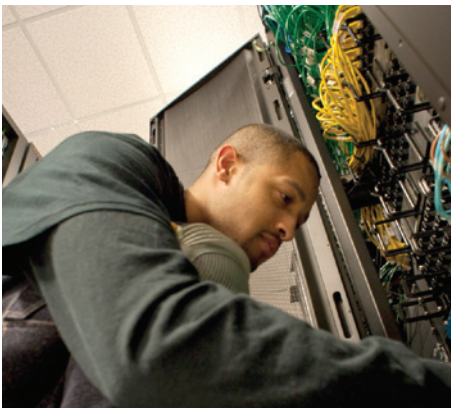
## Boosting Business IQ and Storage Management Capabilities

The Qualcomm IT department has a few pillars of its own, designed to keep data safe and secure so talented engineers can do their work and the sales force can sell solutions. For nearly a decade, Qualcomm has reliably grown its managed storage from a modest 3.5 terabytes (TB) to over 1 petabyte (PB) using Hitachi Data Systems products and services. While data storage exponentially increases, the storage administration staff of two remains the same.

To boost its already intelligent storage environment, Qualcomm determined that tiered storage virtualization and remote storage management from Hitachi Data Systems would provide a sustainable approach to growing the business without requiring an increase in internal staff or floor space. The latest technology refresh would emphasize better offerings to its internal customers, namely greater performance and availability for Qualcomm business units and critical applications.

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To assist with day-to-day management reporting and provisioning of the storage environment, Qualcomm relies on remote



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storage management services. These services enable Qualcomm to focus the Qualcomm storage management team on more value added activity and the business. The remote storage management services are delivered by the Hitachi Data Systems Service Operations Center (SOC), which has become another key element woven into the foundation of Qualcomm's storage revamp.

"We've forged a relationship based on trust with the SOC, and we're able to delegate repetitive but important tasks to the center, meaning we can grow our services without adding complexity or more staff," Whitson continues. The SOC has become a virtual extension of Qualcomm's storage management team.

### Being Moved to Tiers

Qualcomm has two data centers primarily responsible for production operations and comprising seven different sites on the San Diego campus. Another data center in Las Vegas manages testing and development. The storage team also supports data storage at multiple engineering sites across the United States, India, China and Europe.

The existing storage environment was based on a Hitachi Universal Storage Platform at each of the two San Diego buildings and one in Las Vegas. None of the platforms had tiered storage, relying mostly on 10,000RPM Fibre Channel disks as Tier 1 storage.

Qualcomm chose to upgrade all three Universal Storage Platforms to the Hitachi Universal Storage Platform V, with intelligent controller-based virtualization and Hitachi Dynamic Provisioning, for pooling, provisioning and managing both internal and externally attached heterogeneous storage. The three data centers were configured with the Universal Storage Platform V as Tier 1 storage running 15,000RPM Fibre Channel disks for highest performance, and virtualizing a Hitachi Adaptable Modular Storage 1000 as Tier 2, running 10,000RPM Fibre Channel disks. At the primary San Diego location, a second Adaptable Modular Storage 1000 running SATA drives is virtualized behind the Universal Storage Platform V as Tier 3.

Qualcomm has immediate plans to add several Hitachi Adaptable Modular Storage 2500 units into the storage environment, to further develop its tiered model and to replace older equipment.

### Evolving to Simplicity

Hitachi Dynamic Provisioning software is dramatically changing the way Qualcomm handles storage provisioning. Previously, the team spent a considerable chunk of daily time adding LUNs to machines. "Dynamic Provisioning may be the biggest win in our tiered environment. The whole process is simplified, taking less of our time, thought, energy ... and minimizing any performance issues. We used to invest a lot of thought into how to provision, what spindles were available, and what RAID groups and LUSEs we had to consider. Those are all things of the past," explains Scott Whitson, Senior Staff IT Engineer for Qualcomm.

With this storage remodel, Qualcomm also invested in Hitachi Tuning Manager software. "It's always been a challenge to get good performance data quickly from any product. Now, with Tuning Manager, we can quickly identify and monitor performance of the arrays," Whitson continues.

"Going from a flat structure to a sophisticated, easy-to-manage tiered storage environment has afforded us such flexibility and transparency and value. We use Hitachi Tiered Storage Manager to migrate data online between tiers whenever and wherever it needs to go. We're initially putting new applications onto Tier 2. Once we've fully assessed the performance needs of those apps, we can move them up or down without disruption," adds Roden.

### Pooling Resources and Savings

Qualcomm is benefiting from several other unique technologies and services to complete its successful storage tapestry. The Hitachi products were purchased directly through Bedrock Technology Partners, a consulting and engineering firm that offers staff augmentation as part of the package. "Bedrock is a completely different type of partner, providing an onsite storage administrator right in our data center. We gained an all-star addition to our staff," Roden says.

As a strategic storage partner with Hitachi Data Systems, Bedrock has been able to work closely with the account management team, building internal process and procedures within project management and onsite engineering to ensure and maintain the service expectations Qualcomm requires to support all the divisions within Qualcomm.

Qualcomm is also enjoying a 30 percent cost savings by tiering its environment and has reclaimed space across the data centers. "While Hitachi Data Systems is not the only vendor in our IT environment, we are spoiled rotten by the Hitachi team, the relationship, the reliable suite of products and advanced technologies. We love the whole package," concludes Roden.

## About Bedrock Technology Partners LLC

Bedrock Technology Partners LLC is a leading systems integrator, providing technology products and services to customers around the globe. Bedrock provides experienced engineering and relies on its people, proven processes and innovation to complete successful deployments. When properly planned, procured and deployed, these business solutions reduce costs, increase profitability and ultimately improve a company's ability to effectively serve customers.

Founded in 2007, Bedrock Technology Partners LLC is a woman-owned small business and a California-based company.

In the past three years, Bedrock has seen unprecedented growth in terms of revenue, partnership levels and people, and it ranks in the top three of the fastest growing integrators in the country. Bedrock continues to achieve consistent financial growth and provides its clients the strength and stability required to maintain long term relationships.

For more information, please visit [www.bedrock-tech.com](http://www.bedrock-tech.com).

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