

# UPMC pairs IBM ProtecTIER and IBM XIV solutions

## *Winning the backup battle*

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### Overview

#### The need

UPMC harnesses the power of IT to deliver healthcare innovation. Facing exponential data growth, the organization needed a smarter storage solution to meet stringent backup and recovery requirements.

#### The solution

UPMC worked with IBM to implement a comprehensive storage and backup solution that pairs IBM System Storage® TS7650G ProtecTIER® Deduplication Gateways with the IBM XIV® Storage System.

#### The benefit

The IBM solution enables a 24:1 deduplication ratio for Oracle, cuts backup times by 20 percent while drastically reducing the need for traditional tape, and reduces recovery times by more than 50 percent.

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An integrated global health enterprise headquartered in Pittsburgh, Pa., UPMC is one of the leading nonprofit healthcare systems in the United States. By forging new models of healthcare delivery, UPMC is harnessing technology, translating science into solutions, and accelerating innovation worldwide. An \$8 billion organization, UPMC is also western Pennsylvania's largest employer, with almost 50,000 workers.

At the heart of UPMC's success is a passion for innovation. The company's unique strategy of combining clinical and research excellence with business discipline translates into high-quality patient care for western Pennsylvania and the global community. Today, UPMC encompasses 20 hospitals, 400 *doctors' offices* and *outpatient sites*, a *health insurance services division*, and international and commercial *services*.

### Exponential storage growth fuels backup challenges

UPMC has historically relied on physical tape to handle the massive storage needs generated by some 50,000 users, including 2,500 server instances, 1,800 databases, 1.6 petabytes of useable storage and 7 petabytes of backup file space located both onsite and offsite. But with storage demands surging 328 percent in the past three years—and no end to this rapid growth in sight—UPMC was out of space.

“We were literally running out of room in the data center,” says Kevin Muha, enterprise architect and technology manager of storage and data protection services at UPMC. “We had no more room to physically grow the traditional tape on the floor.”



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*“With ProtecTIER and XIV, we’ve been able to not only transform the environment and make it more stable, we’ve been able to take some of the manual house-keeping out of the picture and grow this staff-neutral.”*

—Kevin Muha, enterprise architect and technology manager of storage and data protection services, UPMC

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Beyond physical space limitations, UPMC’s existing backup solution was experiencing lagging backup windows and recovery times. UPMC not only needed a solution that could address these performance issues, they also wanted a solution that would eventually allow them to go almost completely tapeless while remaining cost-effective.

### **ProtecTIER and XIV fill the backup and storage gap**

To address these concerns, UPMC implemented a comprehensive storage solution from IBM that includes two 100-terabyte IBM System Storage TS7650G ProtecTIER Deduplication Gateways and three full-rack IBM XIV storage units. Using its deduplication technology, the ProtecTIER devices write backup data to one of the XIV units onsite. For offsite backup, the ProtecTIER saves backups to traditional LTO-4 tape. UPMC’s overall backup solution is managed by IBM Tivoli® Storage Manager and powered by an IBM Power® 595 server running IBM AIX®.

About 60 percent of the data supported by the ProtecTIER and XIV solution is Oracle. Another 30 percent is split between Microsoft® SQL Server, Microsoft Exchange Server, and databases such as IBM DB2® and Caché. The remaining 10 percent is devoted to network-attached storage and unstructured data such as word processing and spreadsheet documents. All of this data needs to be backed up daily—both to an onsite repository and to tape for long-term retention.

“We’re a huge IBM shop here, so we agreed to do a pilot of ProtecTIER and XIV together,” explains Muha. “We were pleasantly surprised that within three days we were up and running. Normally, it has taken us months just to get virtual tape libraries running in the past. These new solutions seamlessly snapped into our environment, they were stable, and they were very straightforward.”

### **Reaping the rewards of deduplication**

Beyond ease of use, a smaller physical footprint, and lower total cost of ownership, the solution has reduced UPMC’s backup window by two hours, from 14 to 12 hours. On the data-dense 13-terabyte Oracle database, UPMC has achieved deduplication ratios of 24:1.

“We just can’t put it in perspective how much a 24:1 deduplication ratio in Oracle means to us,” Muha says. “Before ProtecTIER, it was 1:1 on thousands of tape cartridges.”

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## IBM Solution Components:

### Hardware

- IBM® Power® 595 running Dynamic LPARs
- IBM System Storage® TS7650G ProtecTIER®
- IBM XIV® Storage System

### Software

- IBM AIX® 6.1
  - IBM DB2®
  - IBM Tivoli® Storage Manager
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*“It really was a winning combination to bring ProtecTIER and XIV together.”*

—Kevin Muha, enterprise architect and technology manager of storage and data protection services, UPMC

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## IT Environment

### Operating Systems

- Microsoft® Windows®
- Linux®

### Databases

- Oracle
- Microsoft SQL Server
- Caché

### Applications

- Cerner
- Epic
- PeopleSoft
- Microsoft Exchange

### Virtualization

- VMware
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Recovery times for these environments, meanwhile, have been significantly shortened. Restores that once took 68 hours are now completed in 30 hours—less than half the time. Tivoli Storage Manager’s reclamation process has become at least 30 percent faster. Overall reliability has also greatly improved.

“Not only are we able to do more with XIV and pay less, we have more visibility into our storage with the system management tools XIV brings to the table,” Muha says. “It really was a winning combination to bring ProtecTIER and XIV together.”

## Looking ahead with IBM solutions

The current storage implementation at UPMC represents the first of two phases. The second phase will include onsite replication to eliminate offsite vaulting. “We’ve already reduced our traditional tape need in half, and we’re hoping to reduce the amount of tape we use to only 15 percent of the original footprint in the future,” Muha says. “We’ll be able to go faster, recover better, and still have the same spend.”

Ultimately, the transformation will allow UPMC to reduce the number of tape library frames from nine to two in its primary data center, and reduce the number of tape drives from 96 to 24. The secondary data center, which currently contains two tape library frames and 24 tape drives, will be eliminated.

“We’re not refreshing to the LTO-5, so that’s a great thing since we can utilize a portion of the existing assets for longer-term needs,” Muha says. “Our new landscape is virtual tape, period.”

The reliability and operational efficiencies of virtual tape over traditional tape cannot be overestimated, Muha says. “When you take the mechanical out of it, a lot of your problems go away,” he explains. “With ProtecTIER and XIV, we’ve been able to not only transform the environment and make it more stable, we’ve been able to take some of the manual housekeeping out of the picture and grow this staff-neutral.”

The direct relationship with IBM has been a rewarding partnership for Muha and UPMC, enabling the organization to design and implement solutions that meet their expanding business and IT needs. “No matter where our storage grows in the future, I believe that ProtecTIER and XIV are going to be able to withstand it,” says Muha. “I see the future only getting better.”

## For more information

Contact your IBM sales representative or IBM Business Partner.

Visit us at: [ibm.com/systems/storage](http://ibm.com/systems/storage)

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