



## Five Keys to Better Backup: Customer Panel Shares Lessons Learned

Bill Hobbib, ExaGrid Systems  
Jeff Winckler, Hunter Industries  
Jorge Cepeda, Memorial Care  
Jonathan DeMersseman, Thomas & King



# Agenda

Typical Issues in Backup

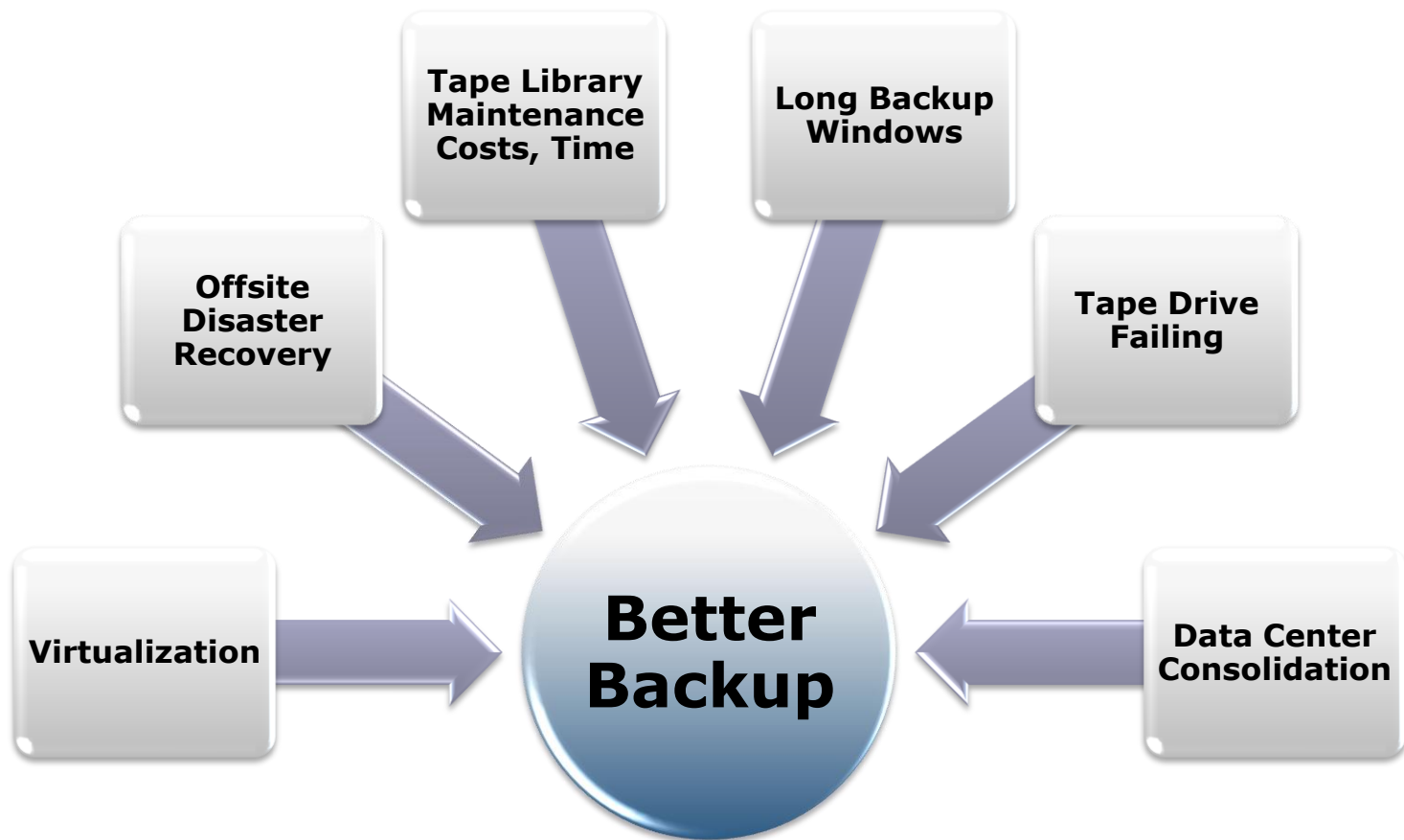
Five Keys for Better Backup

Product Capabilities

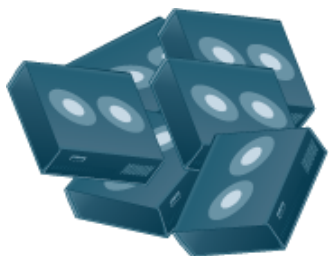
Customer Case Studies

Q & A

# Typical Issues Driving Need for Better Backup



# Evolution of Backup



## Tape Backup

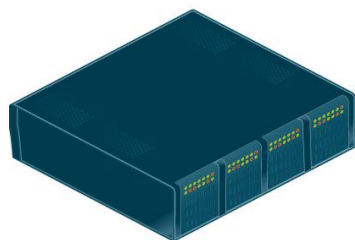
- ❑ Slow performance resulting in longer backup windows
- ❑ 20-30% failure rate for backups and restores
- ❑ IT staff pressured by slow or failed restores

## Standard Disk

- ❑ Fast and reliable backups and restores
- ❑ Expensive for longer retention periods
  - ❑ Only good for staging one or two copies
- ❑ Not viable for offsite retention

## Disk-based Backup with Deduplication

- ❑ Fast and reliable disk-based backups and restores
- ❑ Compression and deduplication allows for long retention
- ❑ Only changed bytes traverse WAN to offsite



ExaGrid

# ExaGrid at a Glance



- ✓ **Company:**  
Offices across North America and Europe  
Rapid growth over 7-year history; 8 consecutive growth quarters
- ✓ **Customers:**  
1,500+ systems installed globally  
More than 120 customer success stories at [ExaGrid.com](http://ExaGrid.com)
- ✓ **Product:**  
Fastest, most scalable disk backup with deduplication  
Best price/performance in the industry
- ✓ **Strategic Partners:**  
Symantec, CA, Vizioncore, Compellent, & VMware
- ✓ **Industry Recognition:**  
Named "Cool Vendor in Data Protection" by Gartner

# Five Keys to Better Backup

1. Deduplicate with appliance to solve problems of tape
2. Write direct to disk & post-process for fastest backups
3. Keep full copy of most recent backup for fastest restores
4. Replicate to offsite disk for better disaster recovery
5. Scale with full servers to maintain backup window

# 1. Deduplicate with appliance to solve problems of tape

## Standard Disk

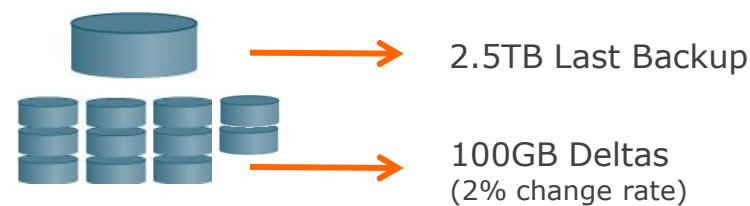


**TOTAL = 60TB**

**Example:** 5TB of data, 12 full backups.  
2% change rate

## ExaGrid with Deduplication

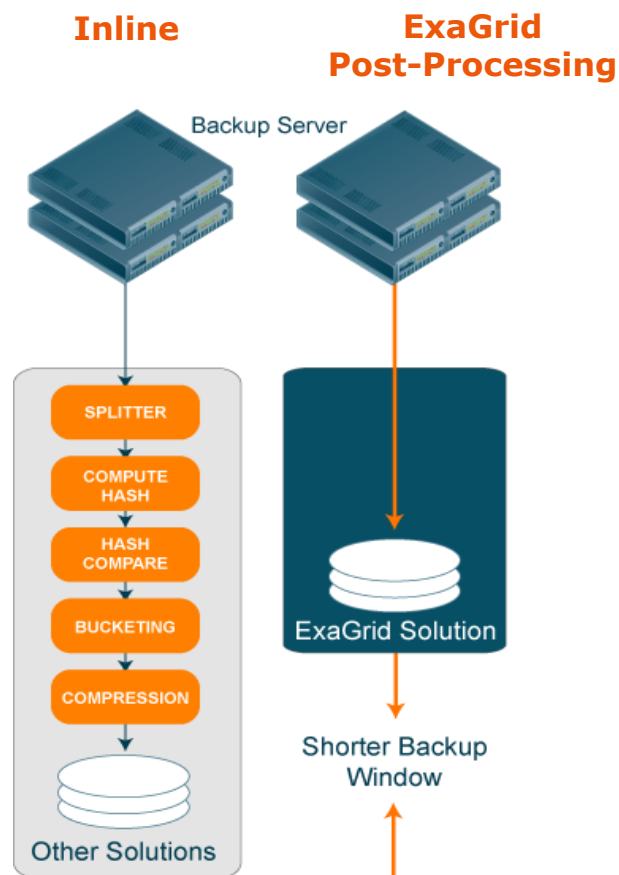
- 2X Compression on last backup
- Byte-level deduplication for previous backups



**TOTAL = 3.6TB**

 the green grid™  
get connected to efficient IT

## 2. Write direct to disk & post-process for fastest backups



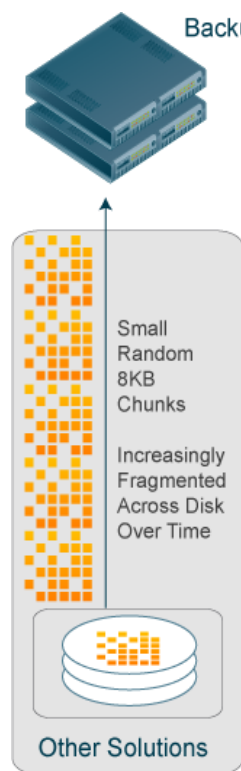
### 30-90% Faster Than Tape

- Backup directly to disk
- Unique landing zone architecture
- Post-process compression and byte-level data deduplication
- No in-line processes to slow backups
- Shortest possible backup window



### 3. Keep full copy of most recent backup for fastest restores

#### Block-level Deduplication



#### ExaGrid Byte-level Deduplication



#### Latest backup stored in complete form

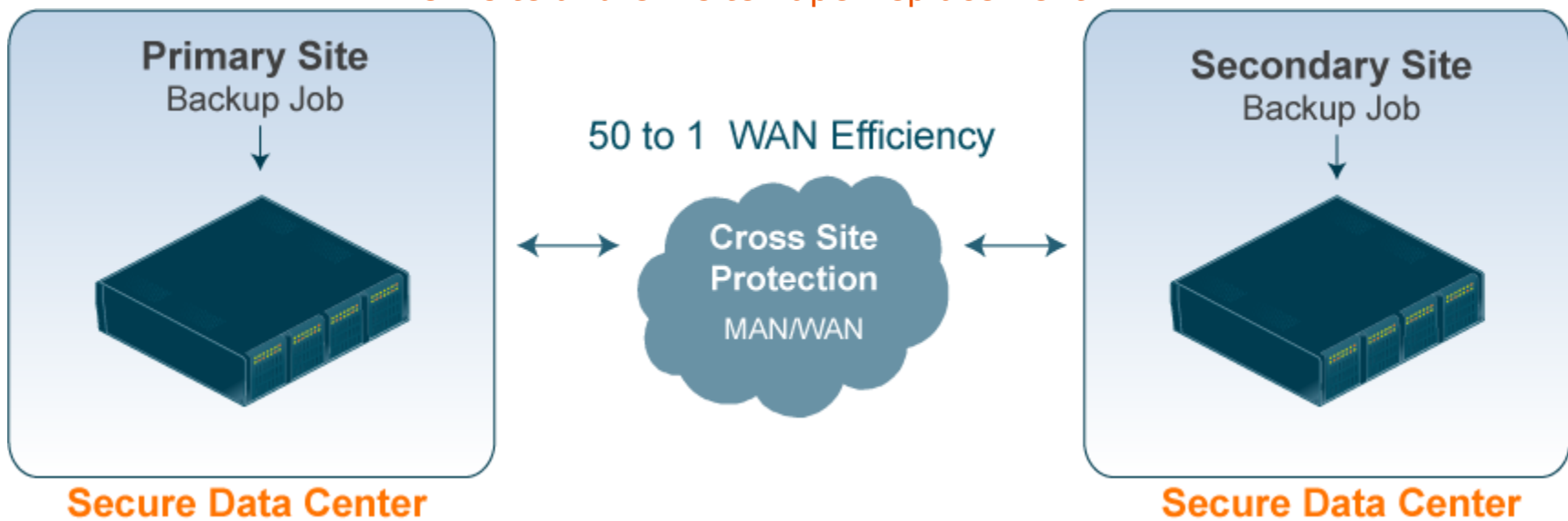
- ❑ 90% of restores from latest backup
- ❑ Ready for instant restore—in as fast as minutes
- ❑ Fast offsite tape copy

#### Efficient restore of earlier versions

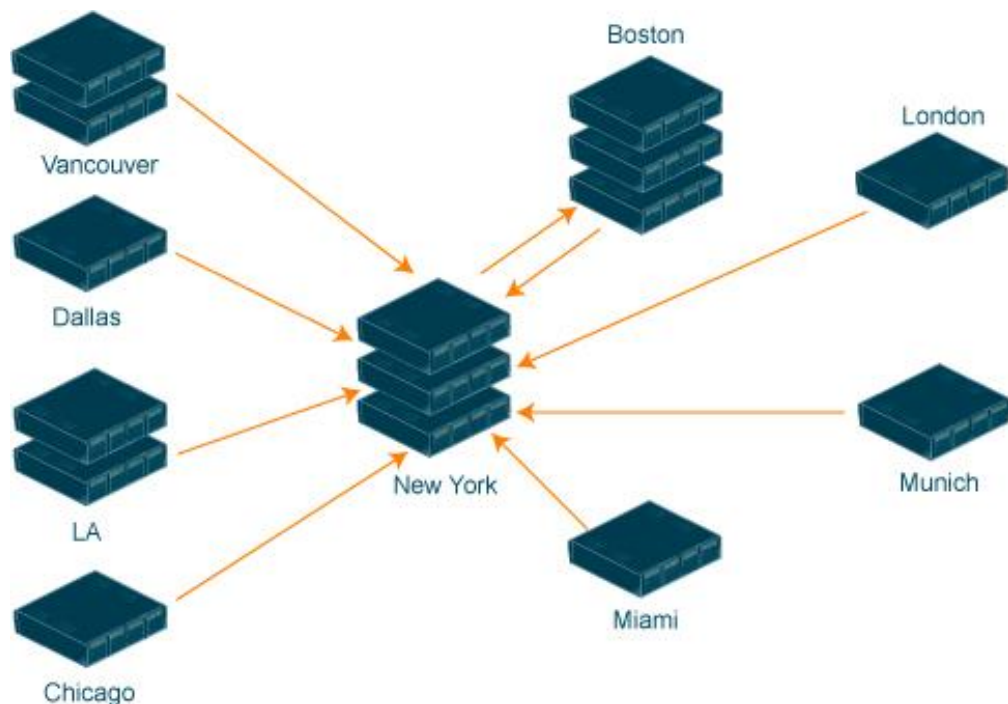
- ❑ Byte-level changes quickly merged to latest backup
- ❑ Seamless to backup application
- ❑ Can restore from any historical version

# 4. Replicate to offsite disk for better disaster recovery

## On-site and Off-site Tape Replacement



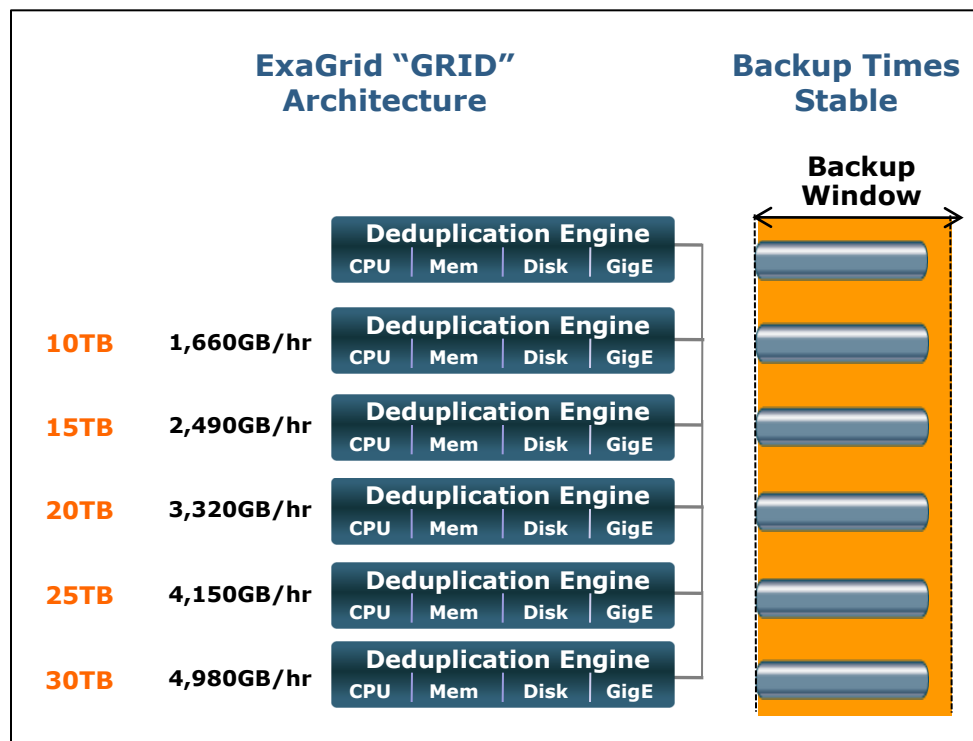
# Multi-site Data Center Disk Backup Topology



## Multi-site Architecture

- 50:1 WAN efficiency across all sites
- Management from single UI
- Cross-site protection between sites
- Consolidated DR copies of backup
  - Reduces costs

## 5. Scale with full servers to maintain backup window



Increased capacity, performance with each ExaGrid node

- Scales from 830GB/hr to over 4.9TB/hr with six deduplication engines
- Ingestion, capacity, deduplication, and replication scale linearly



Jeff Winckler  
Network Administrator  
Hunter Industries

# Hunter Industries: Background and Problems



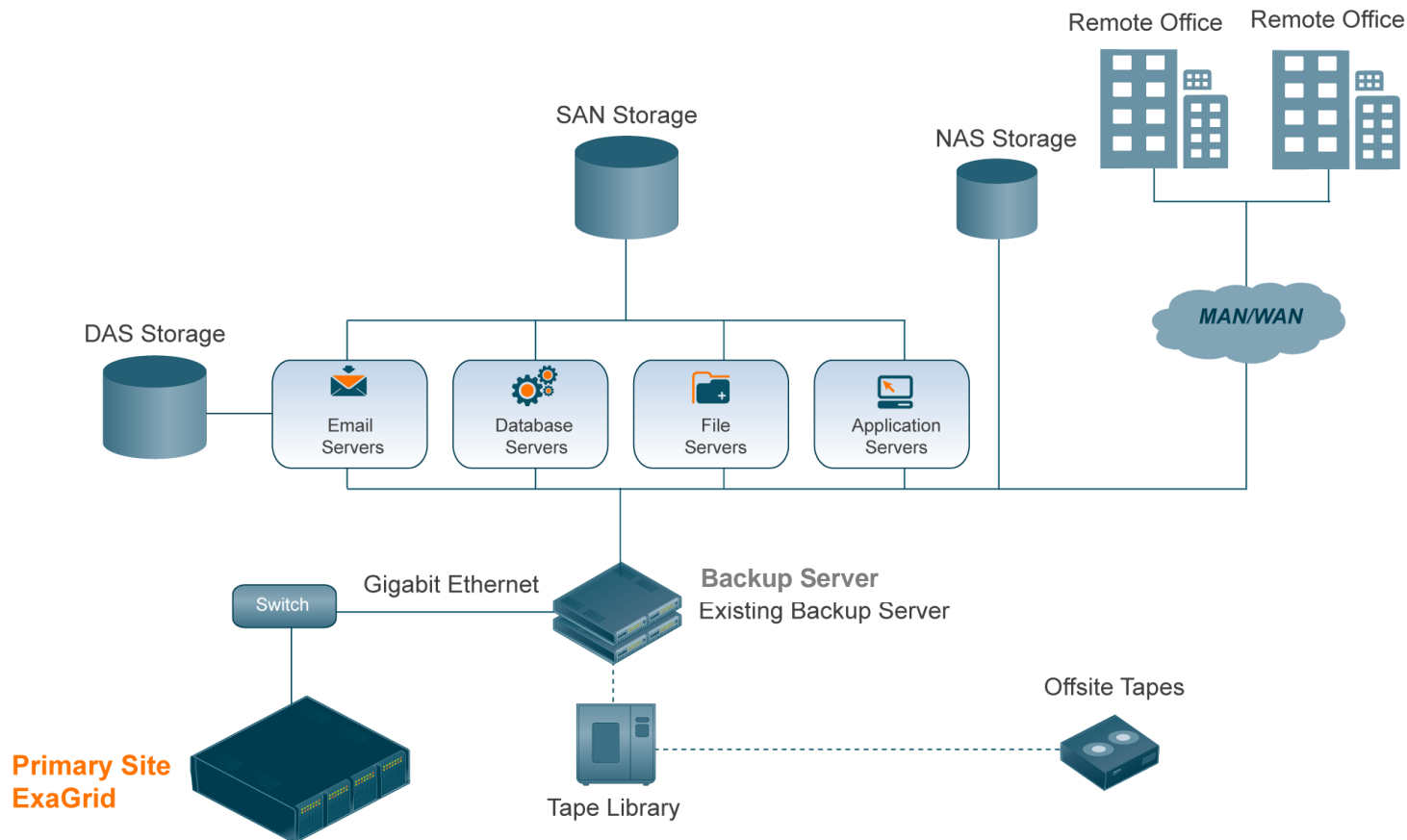
## Background

- ❑ Leading manufacturer of irrigation equipment for landscape and golf industries, based in San Marcos, California
- ❑ 30 employees make up IT group , consisting of Network Services, Development, Help Desk and AS400 team

## Problems

- ❑ Backups took too long:
  - ❑ 10-18 hours a day; window was 8 hours;
  - ❑ Notes® backups took 42 hours with tape
- ❑ Network slow due to constant traffic
- ❑ Tape problems: too many tapes, restores would fail frequently
- ❑ Existing library was dying a slow death resulting in many failures
- ❑ Staff spent ~15 hrs/wk on tape management and weren't keeping up
- ❑ Considered several deduplication appliances to address problems

# Hunter Industries Environment



# Hunter Industries: Solution, Results

## Solution

- ❑ 1 ExaGrid system at HQ
- ❑ Full backups performed from 80 physical and/or virtual servers
- ❑ CommVault Galaxy Backup Software
- ❑ Tape library for disk-to-disk-to-tape archive

## Results

- ❑ Backup times reduced 66% to 6 hours
- ❑ Better management of retention policies
- ❑ Near-instantaneous restores
- ❑ Less tapes result in lower archiving expense



# Lessons Learned – Hunter Industries

- ❑ Deduping is awesome
- ❑ Post-process deduping gives fastest backups
- ❑ Very intuitive management interface
- ❑ Backup speeds to the ExaGrid are very quick on a Gigabit backbone
- ❑ ExaGrid support technicians are very helpful
- ❑ SQL Tlogs, if backed up more than once a day, are best if not backed up to Exagrid as it kills the deduping speeds



Jorge Cepeda  
Network Engineer  
Memorial Care

# Memorial Care: Background and Problems



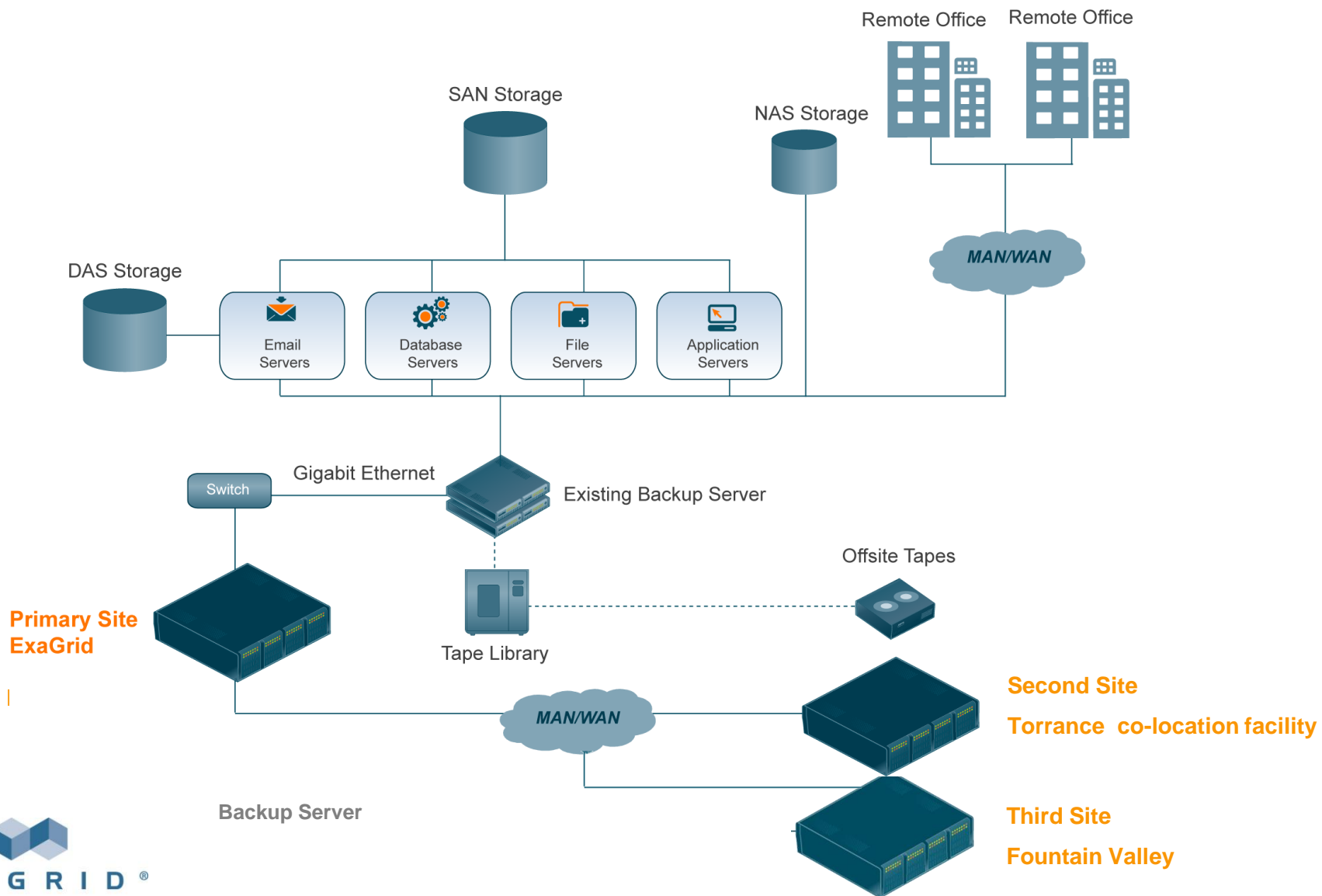
## Background

- Not-for-profit health system with 6 hospitals in Los Angeles and Orange County, California
- IT department made up of 4 campuses with each having its own IT group in charge of local issues as well as an enterprise group exist for handling Wide Area Applications and Network responsibilities.

## Problems

- Backups took too long:
  - 150 servers containing business data; total backup window ~24 hours
- Problems with tape
  - 200-300 tapes consumed/week
  - Major issues restoring data from tape – broken, unreliable
- Exchange server too large to vault
  - IT staff spent a week to restore from tape after server crash
- Limited number of physical drives to run backups
- Server bottleneck

# Memorial Care Environment



# Memorial Care: Solution, Results



## Solution

- ExaGrid systems at 3 locations
  - 3 at HQ in Long Beach, 2 in Torrance and 1 in Fountain Valley
- Full backups performed from 364 physical/virtual servers
- Symantec NetBackup Application

## Results

- Backup times reduced 50%; windows reduced to 12 hours
- Ease of restores
- Replication between two systems lets us act as our own DR center
- Multistreams are now possible
  - 12 backup streams at once before; with ExaGrid, now running 200
- Fit with Green initiative
  - Rack size, 120V power, and incremental scalability saved buying racks of equipment with more power/cooling
- Better management of retention policies

# Lessons Learned – Memorial Care



- Avoid the use of Tape or Virtual tapes
- Multistreaming is possible
- Differentials could be avoided by running fulls everyday where permitted.
- Ease of use
- Excellent replication technology
- Once in place no need to manage on a daily basis
- Vaulting to tape from ExaGrid is possible
- Post-process deduplication technology is excellent for backup windows as it doesn't cut into the backup window
- Post-process deduplication technology enables us to perform restores very quickly, even on largest files
- Failures are close to none pertaining to media errors
- Installation is as easy as turning on the appliance
- Excellent Technical Support



Jonathan DeMersseman  
Manager, Infrastructure Services  
Thomas & King

# Thomas & King: Background and Problems

## Background

- ❑ 8<sup>th</sup> largest restaurant franchise in the US with 7500 employees and 89 Applebee's and 6 Carino's Italian restaurants
- ❑ IT group comprised of 9 employees in the areas of infrastructure, application development, restaurant systems and administration



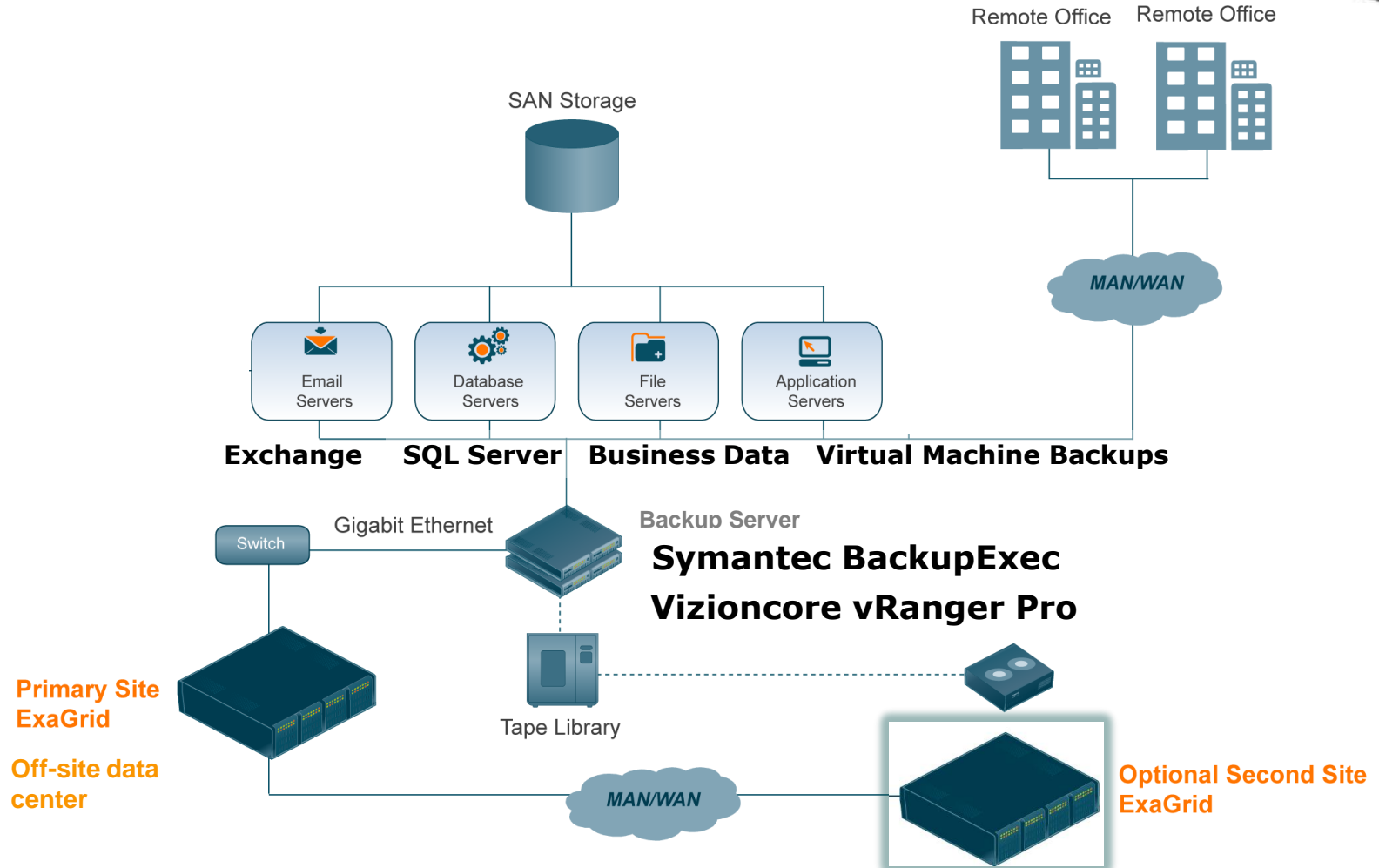
## Problems

- ❑ Backups took too long:
  - ❑ 26-30 hours a day
  - ❑ Backups split into 4 primary jobs, including incrementals for file server, business data, SQL DB, and nightly full backup of Exchange
- ❑ Unreliable backups – no confidence in tapes for restores
- ❑ Productivity issues: spending a full week's time managing tape
- ❑ Considered storage solution (data snapshots on SAN) and disk with dedupe appliances





# Thomas & King Environment



# Thomas & King: Solution, Results



## Solution

- ❑ 1 ExaGrid system at data center, with architecture to add replica at corporate HQ
- ❑ Full backups performed from 5 physical and 38 virtual servers
- ❑ ExaGrid System backup up to tape once a month for archives
- ❑ Symantec BackupExec and Vizioncore vRanger Pro Backup Applications

## Results

- ❑ Backup times reduced 50% to about 12 hours
- ❑ More reliable backups – full backups completed every night
- ❑ Faster restores – completed in just seconds
- ❑ Reduced reliance on tape – only backup to tape once per month
- ❑ Greatly reduced time spent managing tape
- ❑ VMware images back up directly from vRanger Pro – resulting in 3 full VM backups now reduced by over 6:1

# Lessons Learned – Thomas & King



- Having SQL dumps backed up directly to ExaGrid takes pressure off infrastructure staff and allows IT staff to work in their areas of specialization
  - Database manager can restore SQL data if needed making it more efficient
- Realized high efficiency in our SQL backups
  - 15 weeks now take up the space of 1 backup
- Support is very strong – know most of the techs by name
- Great for VMware backups
- ExaGrid is very nimble as organization – upgrade to architecture
- Makes tape elimination a real possibility
- Wide vendor partnerships make vendor changes very possible
- Revolutionary early-to-market provider who continues actively developing and advancing product

Bill Hobbib  
Vice President, Marketing  
ExaGrid Systems



## Summary: Five Keys to Better Backup

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# Next Step: Dedupe Feasibility Assessment

## **Purpose:**

Optimize your environment to best meet operational and business goals

## **Process:**

30-60 minute review and discussion of current environment, challenges, and issues

## **Payoff:**

Best practices, technology suggestions to cover current /future needs, achieve operational benefits

# Thank You!



# Questions?

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