Server / Storage Consolidation Plan
using VMWare and EqualLogic

vmware®   **Virtual Machines**

EQUALLOGIC®   **Virtual Network Storage**

FEDERAL APPLIANCE

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Self-Service Pricing. Full-Service VAR.
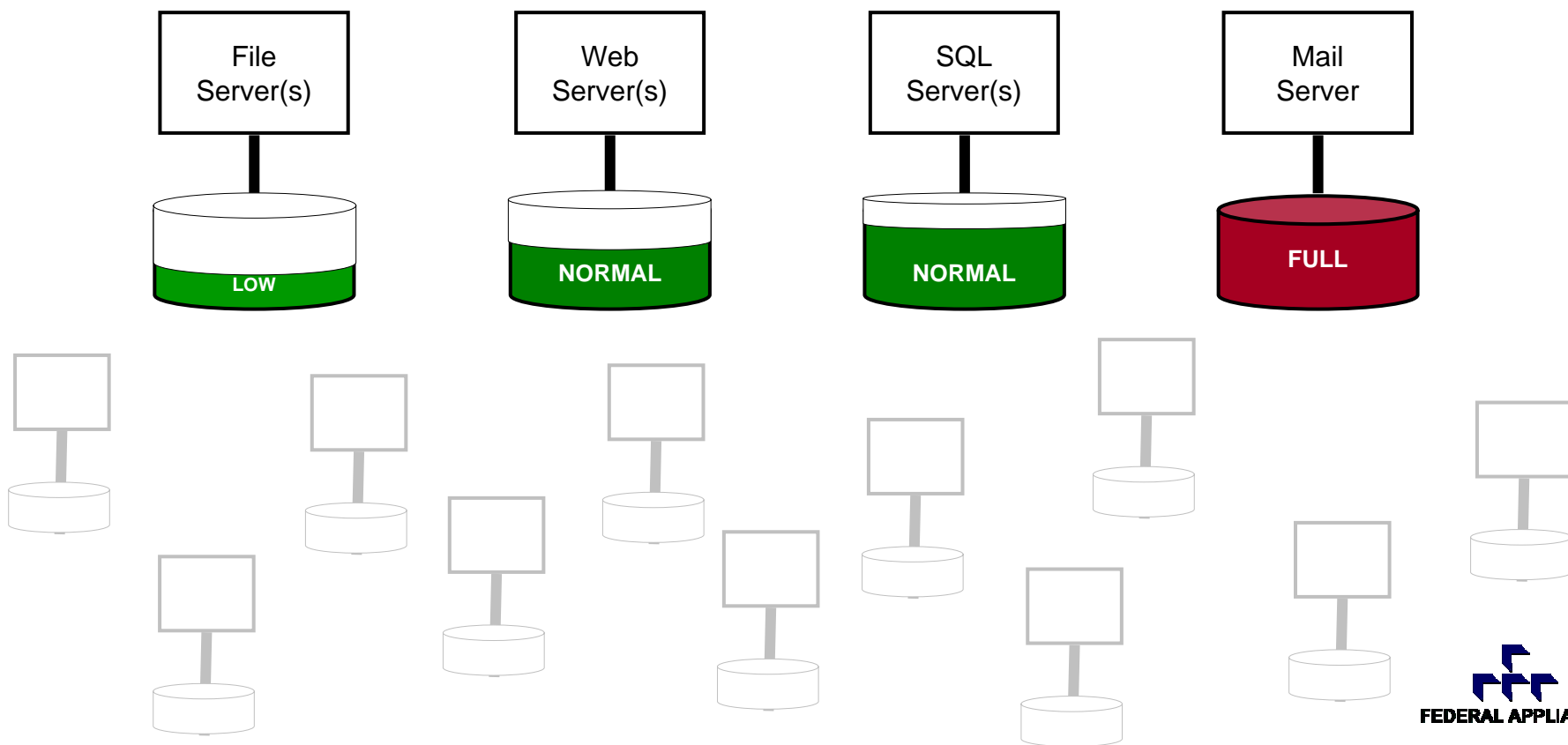
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Server / Storage Consolidation Goals

- **Reduce Server/Storage costs**
- **Simplify Scaling**
- **Simplify Management**
- **Eliminate Data Loss**
- **Share Available Space among Servers**
- **Improve Application Availability**
- **Provide Off-Site Disaster Recovery**

Typical issues associated with physical systems

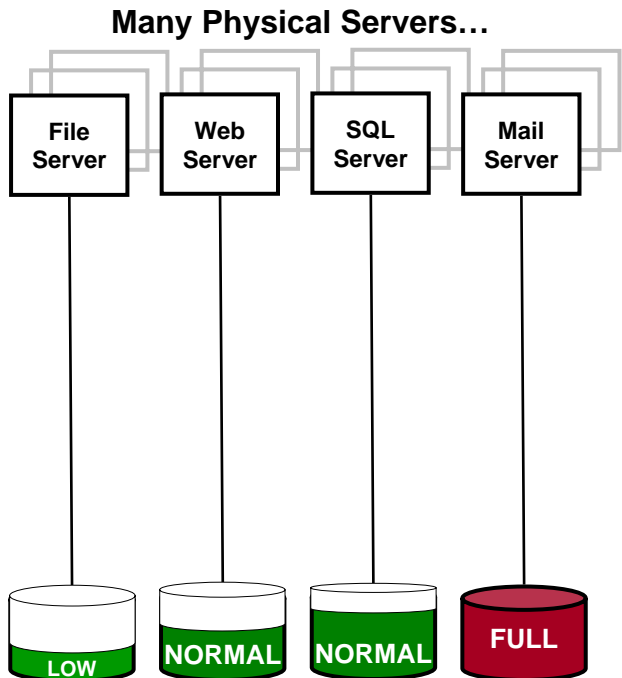**Servers with Directly Attached Storage (DAS) create management issues**

- **Expensive to buy and maintain**
- **Hard to Scale**
- **Complex to manage**
- **"Out of Space" problems, no sharing**

File Server(s)	Web Server(s)	SQL Server(s)	Mail Server
LOW	NORMAL	NORMAL	FULL

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Easy Solution using VMWare with EqualLogic, BUT…

PROBLEM

- **Expensive to buy and maintain**
- **Hard to Scale**
- **Complex to manage**
- **"Out of Space" problems, no sharing**

Many Physical Servers…

File Server	Web Server	SQL Server	Mail Server

| LOW | NORMAL | NORMAL | FULL |

SOLUTION

- **Inexpensive to buy and operate**
- **Unlimited Scalability**
- **Simpler to manage**
- **Virtual storage where needed**

vmware

Physical Server 1   **Physical Server 2**

"Virtual Machines (VM)"   *"Virtual Machines (VM)"*

| File | Web | SQL | Mail | | File | Web | SQL | Mail |

EqualLogic Storage Device

FREE SPACE

| File | Web | SQL | Mail |

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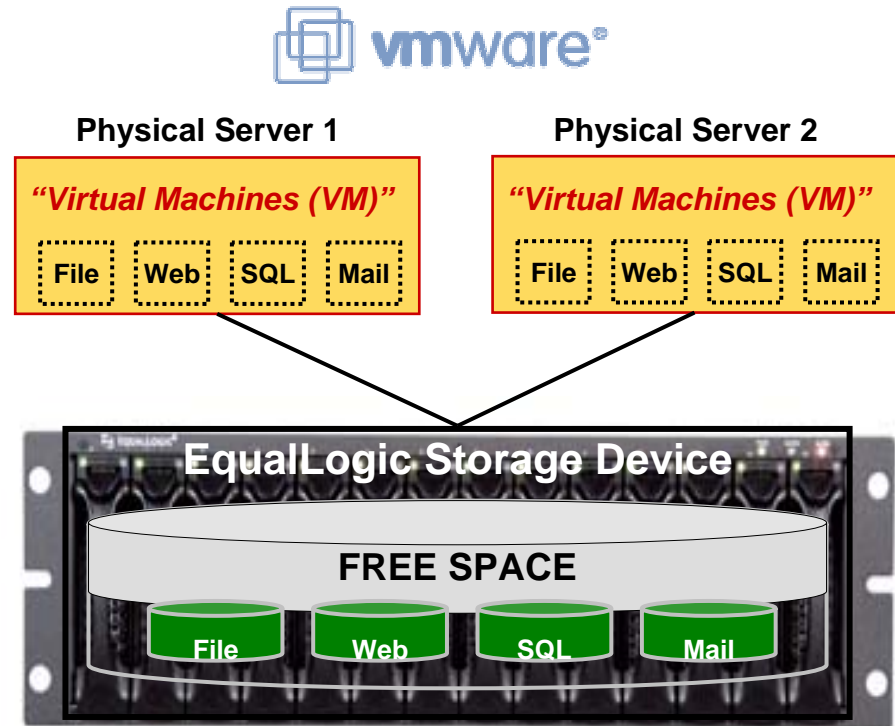
How do we migrate without disrupting applications?

?

PROBLEM → **SOLUTION**

No Disruptions allowed !

PRODUCTION APPs

File Server · Web Server · SQL Server · Mail Server

LOW · NORMAL · NORMAL · FULL

vmware®

Physical Server 1

"Virtual Machines (VMs)"

File · Web · SQL · Mail

Physical Server 2

"Virtual Machines (VMs)"

File · Web · SQL · Mail

EqualLogic Storage Device

FREE SPACE

File · Web · SQL · Mail

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Non-disruptive Plan Overview
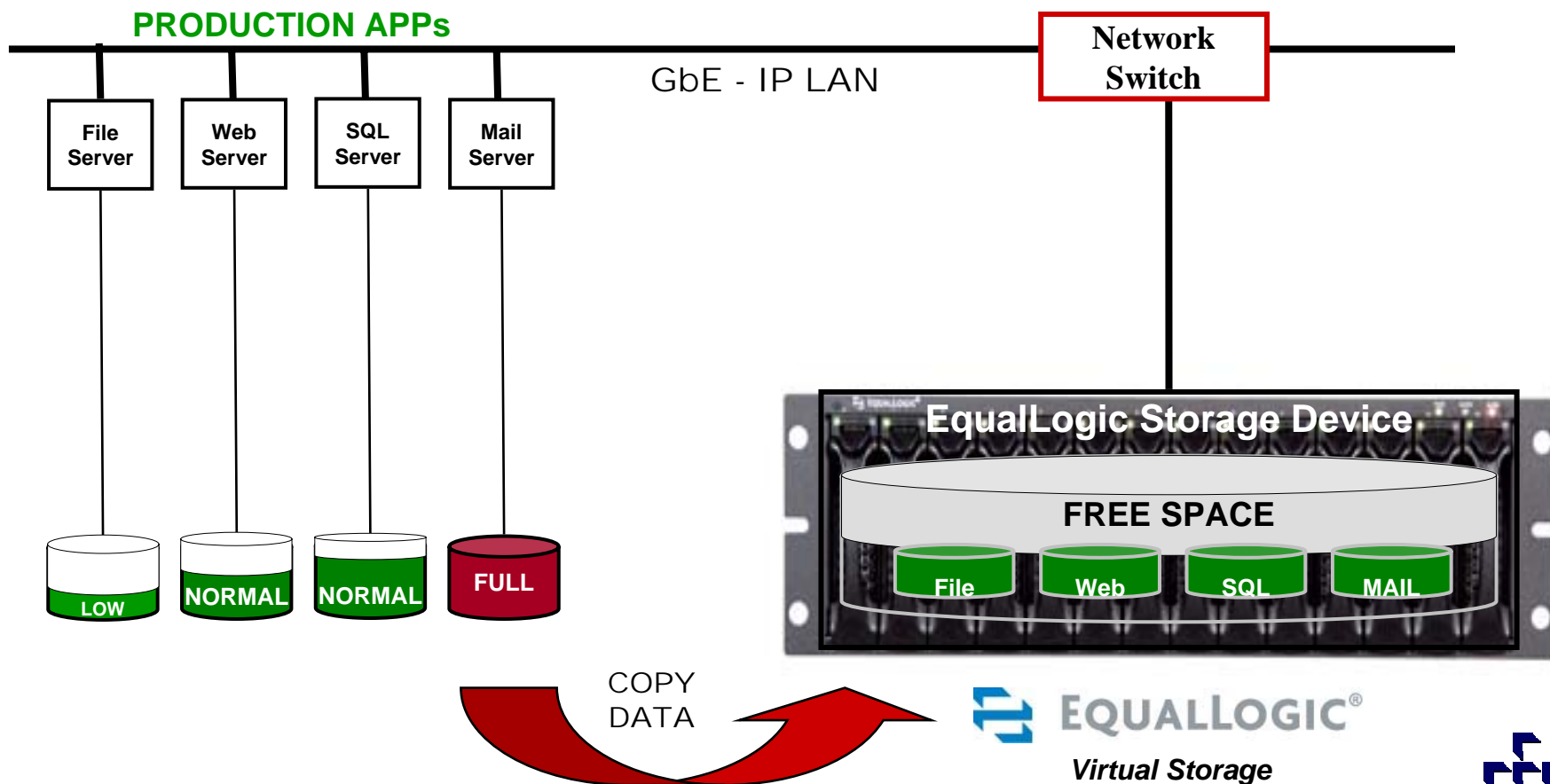
PROBLEM → **SOLUTION**

4 Step Plan

1) Consolidate Storage

2) Implement/TEST new VMWare environment

3) Activate VMWare in production

4) (optional) Implement Off-Site Replication

File
Serv

LOW

No Disruptions !

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Step 1 – Consolidate Storage

Connect EqualLogic box to switch and copy volumes

PRODUCTION APPs

GbE - IP LAN

Network Switch

File Server	Web Server	SQL Server	Mail Server

LOW **NORMAL** **NORMAL** **FULL**

EqualLogic Storage Device

FREE SPACE

File Web SQL MAIL

COPY DATA

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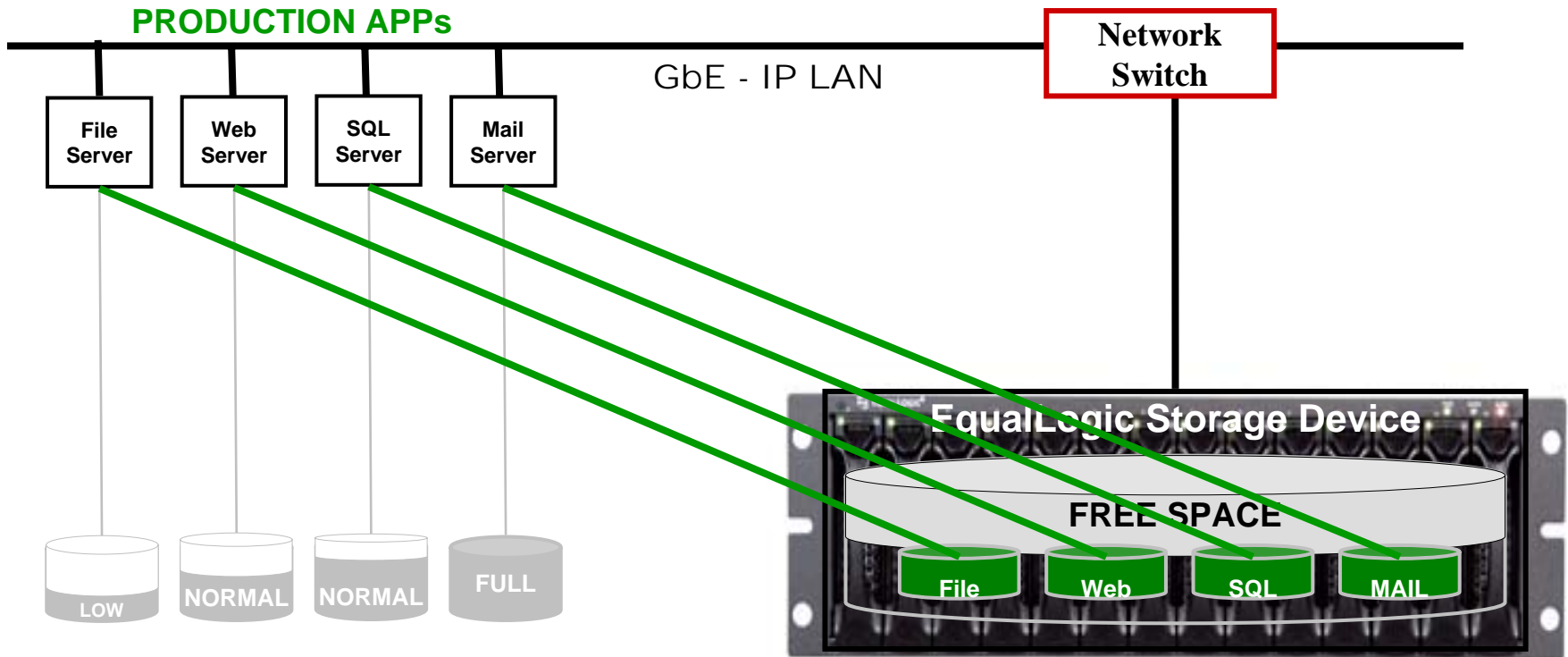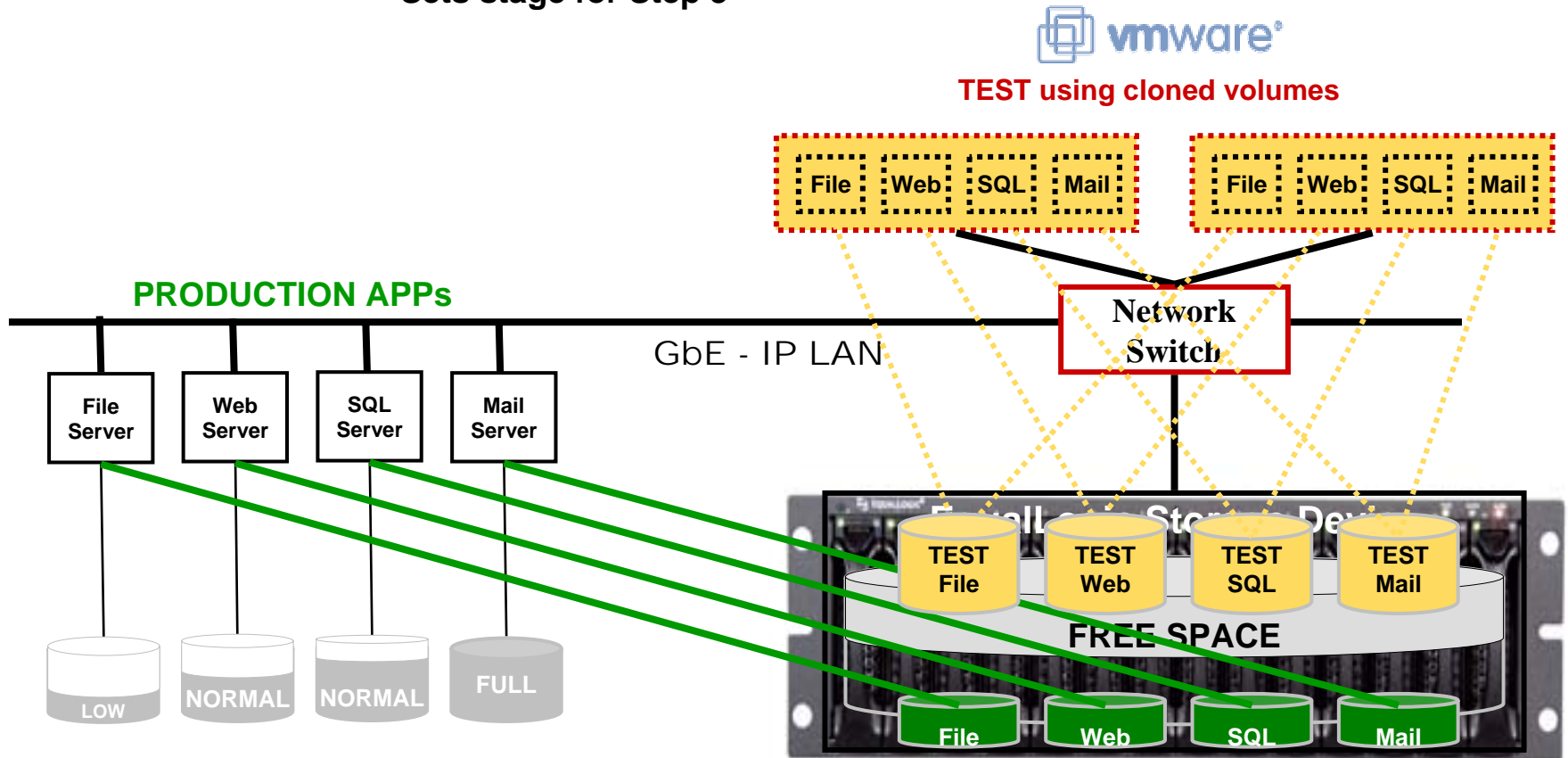
Step 1 Complete

Production Servers begin using consolidated storage on EqualLogic
- **Eliminates data loss from equipment failure**
- **Solves "out of space" problems**
- **Sets the stage for Step 2**

PRODUCTION APPs

GbE - IP LAN

Network Switch

| File Server | Web Server | SQL Server | Mail Server |

LOW NORMAL NORMAL FULL

EqualLogic Storage Device

FREE SPACE

File Web SQL MAIL

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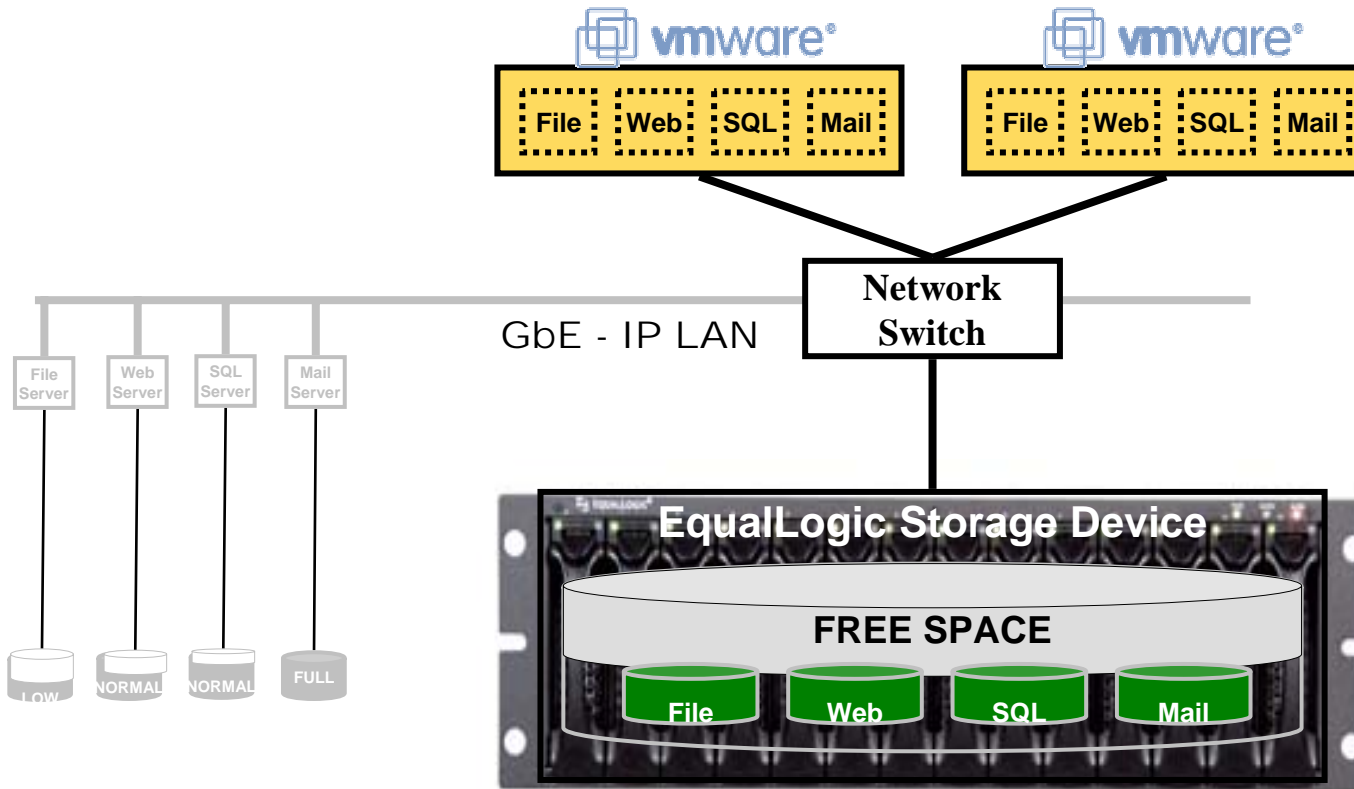
Step 2 – Set up Virtual Machines and TEST

- Use Cloning feature of EqualLogic to create TEST volumes
- Configure VMWare Servers with Virtual Machines
- Test thoroughly while still running apps on former platforms
- Sets stage for Step 3

vmware

TEST using cloned volumes

File	Web	SQL	Mail

File	Web	SQL	Mail

PRODUCTION APPs

Network Switch

GbE - IP LAN

File Server	Web Server	SQL Server	Mail Server

LOW	NORMAL	NORMAL	FULL

TEST File **TEST Web** **TEST SQL** **TEST Mail**

FREE SPACE

File **Web** **SQL** **Mail**

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Step 3 – Activate VMs in Production

- **Switch production to new VMWare platform**
- **Shutdown former servers (or re-deploy)**
- **Sets stage for Step 4 (optional)**

SOLUTION COMPLETE

vmware

| File | Web | SQL | Mail |

vmware

| File | Web | SQL | Mail |

Network Switch

GbE - IP LAN

| File Server | Web Server | SQL Server | Mail Server |

LOW   NORMAL   NORMAL   FULL

EqualLogic Storage Device

FREE SPACE

| File | Web | SQL | Mail |

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Step 4 – Add Remote Site using EqualLogic Replication

- Add 2nd EqualLogic unit at remote site
- Re-deploy servers to remote site
- Run VMWare images
- Enable EqualLogic **Replication (included at no charge)**
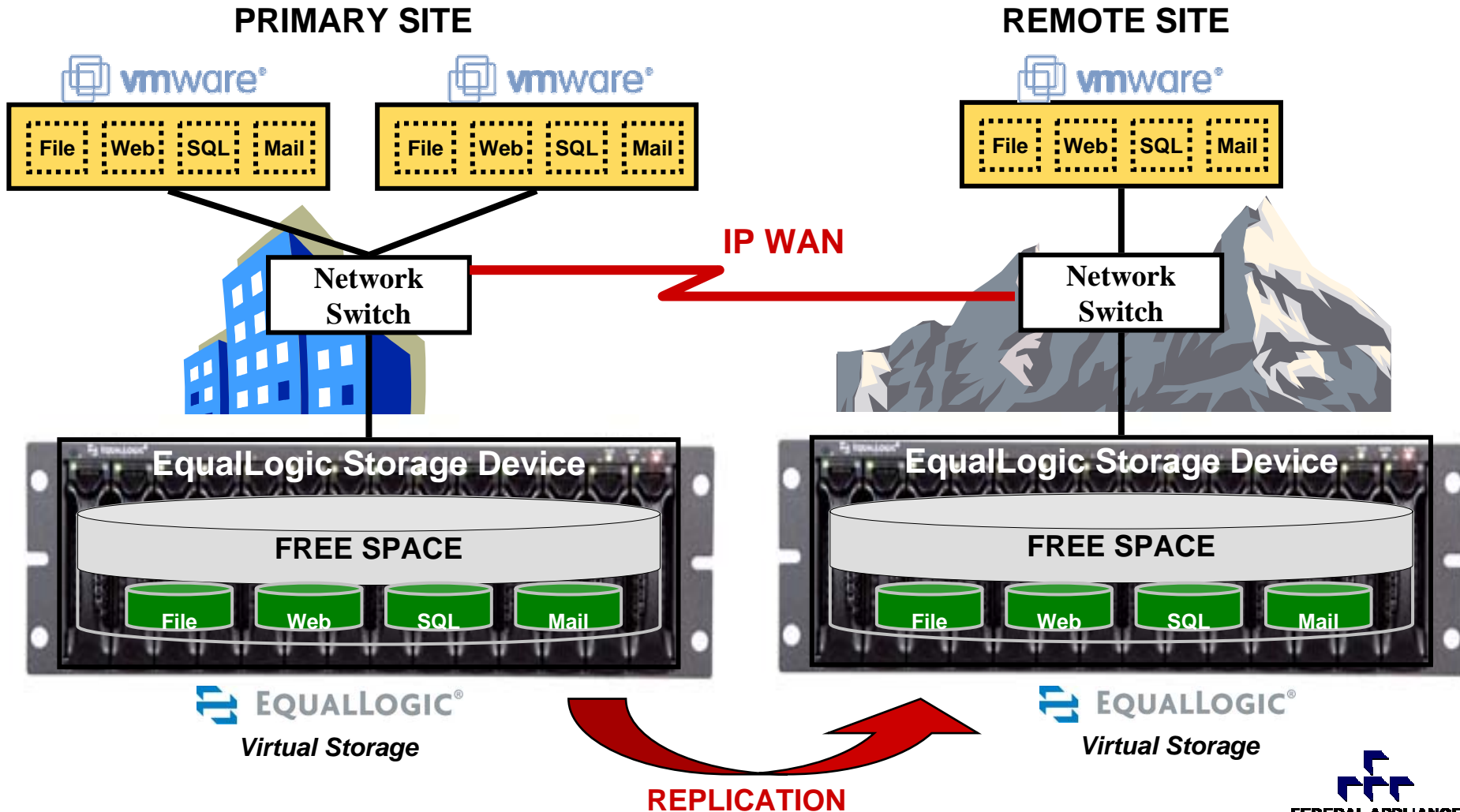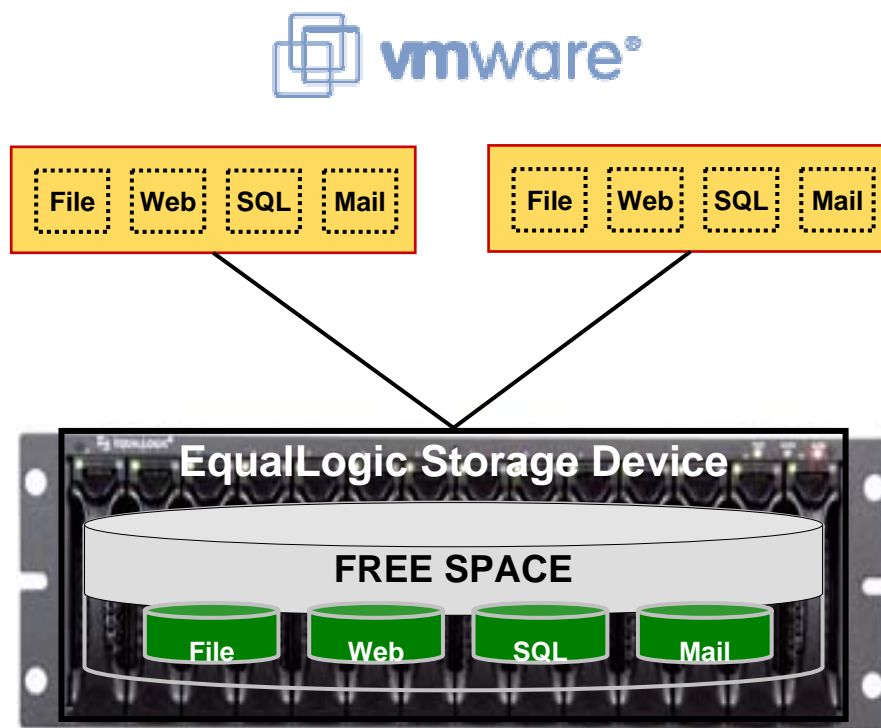
Migration complete with no impact

PROBLEM

- Expensive to buy and maintain
- Hard to Scale
- Complex to manage
- "Out of Space" problems, no sharing

File Server	Web Server	SQL Server	Mail Server

LOW	NORMAL	NORMAL	FULL
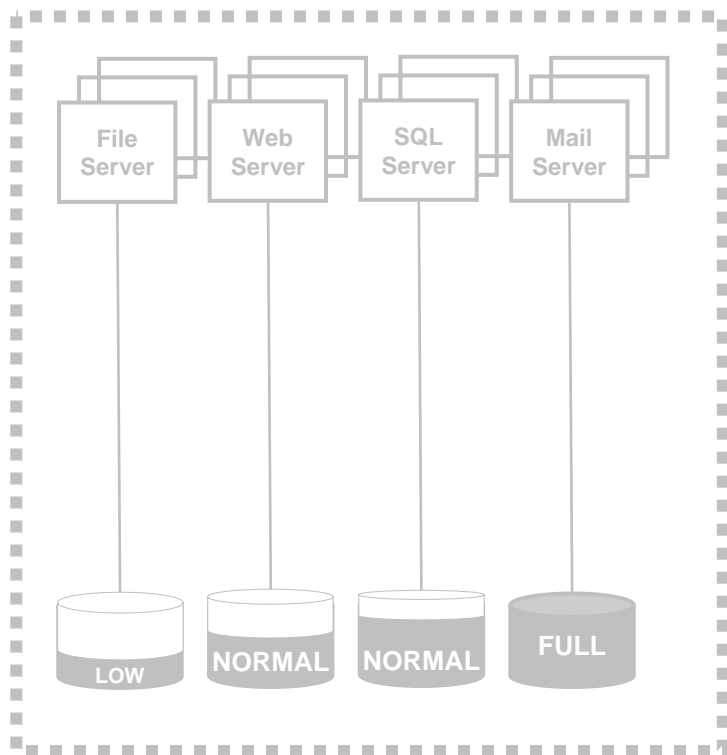
No Disruptions !

SOLUTION

- Inexpensive to buy and operate
- Unlimited Scalability
- Simpler to manage
- Virtual storage where needed

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File	Web	SQL	Mail		File	Web	SQL	Mail

EqualLogic Storage Device

FREE SPACE

File	Web	SQL	Mail

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Summary

Goals Accomplished:

- ✓ **Reduce Server/Storage costs**
- ✓ **Simplify Scaling**
- ✓ **Simplify Management**
- ✓ **Eliminate Data Loss**
- ✓ **Share available space among servers**
- ✓ **Improve Application Availability**
- ✓ **Provide Off-Site Disaster Recovery**

Next Steps:

1. **Get Self-Service EqualLogic Quote from Federal Appliance**
2. **Connect EqualLogic Device to IP LAN**
3. **Copy existing volumes to EqualLogic and activate**
4. **Setup VMWare, TEST and then activate**
5. **Redeploy old servers and 2nd EqualLogic at Remote Site**

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Thank You

"Simplicity is the ultimate sophistication."

- Leonardo Da Vinci

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