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Mission Critical Operations

What you'll learn

Key strategies to design and operate UP-UX systems for maximum performance and reliability

- Build it right - initial planning
- Keep it running - ongoing proactive maintenance
- Fix it fast - be prepared to react

Success Stories

Businesses are increasingly reliant on Mission Critical computing

In the Past

- Mission Critical operations meant quick recovery from a disaster
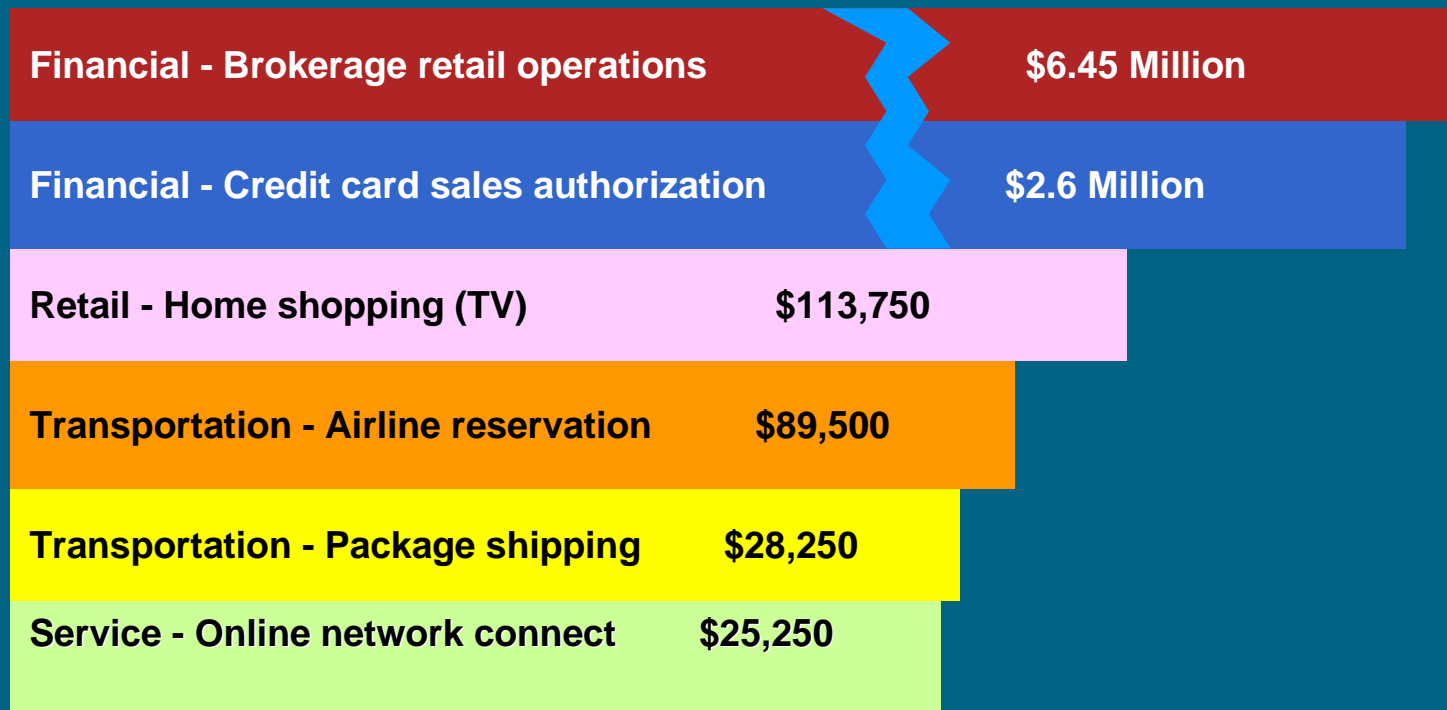
Now

- Continuous operation is required to stay in business
- Recovery from a disaster may be too late!

Consequences of an outage are wide and deep

- Lost Customers
- Lost Opportunities
- Lost Capacity
- Idle or Unproductive Labor
- Cost of Restoration
- Penalties
- Litigation
- Bad Publicity
- Loss of Life
- Loss of Stock Valuation

Businesses are increasingly reliant on Mission Critical computing

Average Cost per Hour of Downtime in Different Businesses

Financial - Brokerage retail operations	$6.45 Million
Financial - Credit card sales authorization	$2.6 Million
Retail - Home shopping (TV)	$113,750
Transportation - Airline reservation	$89,500
Transportation - Package shipping	$28,250
Service - Online network connect	$25,250

Source: Contingency Planning Research

High impact strategies

"By far, application software failures account for the greatest portion of downtime"
-- Gartner Group

80% of Mission Critical system failures are caused by

- Software management
- IT infrastructure

Build It Right

Step by step...

- Conduct a business impact analysis

- Evaluate and document existing recovery strategies

- Evaluate and document additional risk mitigation actions

- Formalize and document a business recovery plan

Build It Right

Start here -

Define your company's business needs

- What is your business?
- What are you willing to spend?

Describe your environment

- Physically describe today's computing environment.
- Do you use any High Availability technologies today?

Build It Right

Start here -

Define your risk tolerance levels

- What is your downtime tolerance?
- How much does downtime cost?
- What are your recovery requirements?

Define your operational contingency

- Power, backup strategy?
- Describe your disaster recovery plan

Build It Right

Invest in future success

Technology Infrastructure

- Focus on reliability

IT Processes

- Documented procedures
- Data protection
- Monitor for early problem detection

Support Partnerships

- Proactive risk management
- Vendor service level guarantees
- Maximized on site support
- Aggressive escalation procedures

Preventative features

– Predictive software

– Self-healing technology

Reactive features

– Failover

– On line replacement

  – Patching

  – Hardware peripherals

Technology Infrastructure

- **Integrate change**

- **Allow rolling updates during 24X7**

- **Proactive support contracts**

IT Processes

BCS (Business Continuity Support)

- Operations assessment
- Patch analysis
- System environment change management
- System release planning seminars
- Support delivery review

Support Partnerships

Build It Right

HP Services and Tools

- Business Recovery Services

- Mission Critical Server Suite
  (99.95% availability)

- HP OpenView

- HAO (High Availability
  Observatory)

- Multi-Vendor Support Alliances

- Industry focused Mission Critical
  services

- Network Availability Services

- HP Engineering Services

- HP Consulting Services

Build It Right

M ission C ritical environm ent design checklist

H A softw are product selection:

- M C /ServiceG uard or M C /LockM anager
- E M S
- ITO
- ITA
- P erfview
- G lance+P ak
- M easrew are

LockM anager restrictions

Build It Right

M ission C ritical environm ent design checklist

Failure P rotection

- S P U
- D isk
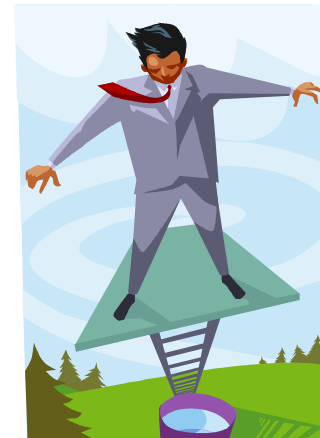- N etwork
- P ower

Lock D isk requirem ent

B readth of your solution

- S im ple H A clusters
- M etro C luster
- C ontinental C luster

D isaster R ecovery S trategy

Keep It Running

Change = Risk

Risk has Consequences

Keep It Running

Risks of Patching

Risk of Doing Nothing

- Don't prevent known problems
- Experience sub-optimal performance
- Miss out on improvements

Risk of Doing Something

- Make inappropriate changes
- Impair function/performance
- Cause new problems

Keep It Running

Benefits of Patching

Reactive Patching

- Restore function/operation
- Quick to install
- Specific

Proactive Patching

- Avoid known problems
- Improve reliability
- Standardization

Keep It Running
Three Strategies

Innovative

Ex: Hardware or Software Development

- Most tolerant of downtime
- Need for latest features
- Downtime is an accepted cost of doing business

Conservative

Ex: Bank Branch, Inventory Management

- High (but not life threatening) uptime requirement. Can switch to manual processing
- Only new features that increase uptime or are business critical

Restrictive

Ex: Telecomm, Patient Monitoring

- High uptime requirement
- Low requirement for new features
- Downtime = loss or risk of life, or business stops operation

Keep It Running
Targeted recommendations

	O/S, Products, Applications	Proactive Patching	Reactive Patching	Software Change Management	Test Environment
Restrictive	Stable release Available for 1+ years	▪ Use only thoroughly-tested patches with the highest level of field experience	▪ Make fewest changes possible to restore function ▪ Perform full diagnostic analysis before attempting a solution	▪ Formal plan with explicit roles & responsibilities ▪ Documented back-out plan for changes, if necessary ▪ Documented DRP that is updated & tested at least yearly	▪ Dedicated equipment ▪ Matches production environment ▪ Testing includes simulated loads
Conservative	Stable release Available for 6+ months	▪ Use only thoroughly-tested patches with substantial field experience	▪ Make fewest changes possible to restore function ▪ Perform full diagnostic analysis before attempting a solution	▪ Formal plan with explicit roles & responsibilities ▪ Documented back-out plan for changes, if necessary	▪ Dedicated equipment that matches production environment
Innovative	Stable release Available for 2+ months	▪ Patches should be carefully reviewed for risks and benefits	▪ Focus on restoration of function ▪ Limit number of concurrent changes	▪ Established roles & responsibilities	Test on development equipment or off-hours on production environment

Keep It Running

Patching Best Practices

- Testing in your local environment.
- Use of templates or application classes.
- Contingency planning
- Clustering
- Using patch bundles
- Vendor partnerships
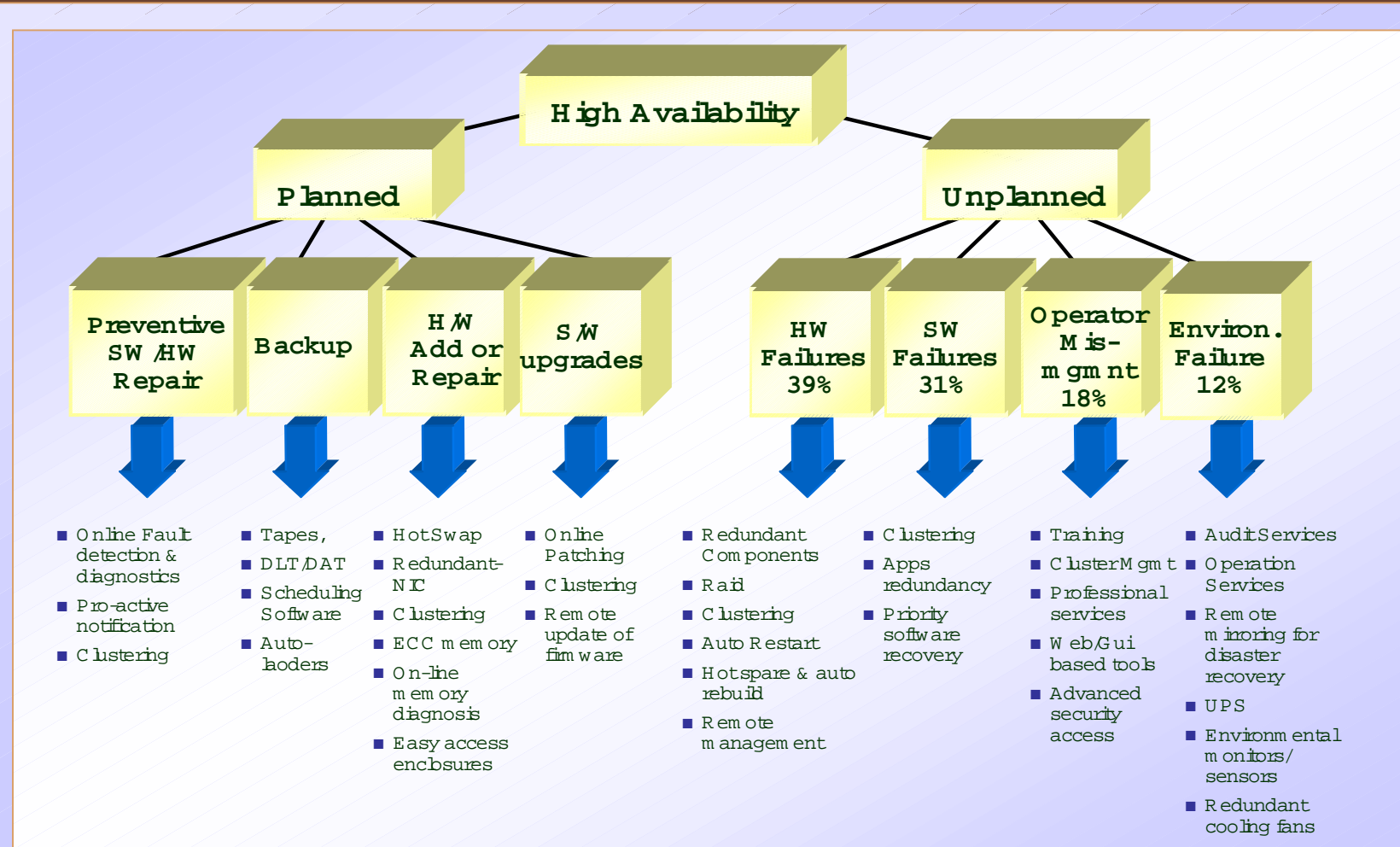- Proactive Patching frequency

Keep It Running

Proactive Maintenance

HP's Business Continuity Support

- Operational Assesment
- Operational profile
- Technical reviews
- Proactive Patch Management

Keep It Running

HP Solutions address all of the Primary Causes of Downtime

High Availability

Planned

Unplanned

Preventive SW/HW Repair

Backup

H/W Add or Repair

S/W upgrades

HW Failures 39%

SW Failures 31%

Operator Mis-mgmnt 18%

Environ. Failure 12%

- Online Fault detection & diagnostics
- Pro-active notification
- Clustering

- Tapes, DLT/DAT
- Scheduling Software
- Auto-loaders

- Hot Swap
- Redundant-NIC
- Clustering
- ECC memory
- On-line memory diagnosis
- Easy access enclosures

- Online Patching
- Clustering
- Remote update of firmware

- Redundant Components
- Raid
- Clustering
- Auto Restart
- Hotspare & auto rebuild
- Remote management

- Clustering
- Apps redundancy
- Priority software recovery

- Training
- Cluster Mgmt
- Professional services
- Web/Gui based tools
- Advanced security access

- Audit Services
- Operation Services
- Remote mirroring for disaster recovery
- UPS
- Environmental monitors/ sensors
- Redundant cooling fans

Fix It Quick

BCS Reactive Support Features

- Critical problem resolution
- Dedicated on site parts inventory.
- 4 hour call to repair (highest in the industry).
- Problem resolution verification
- Non-HP product support
- Phone-in software assistance
- Escalation management
- Assigned support team

Success Stories

- VISA
- Merisel, Inc.
- Quantum Corporation
- Colorstamps

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