# Case Study: Business Continuity Planning for Site-Level Disaster

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# Northrop Grumman Today

## *Positioned for Growth*

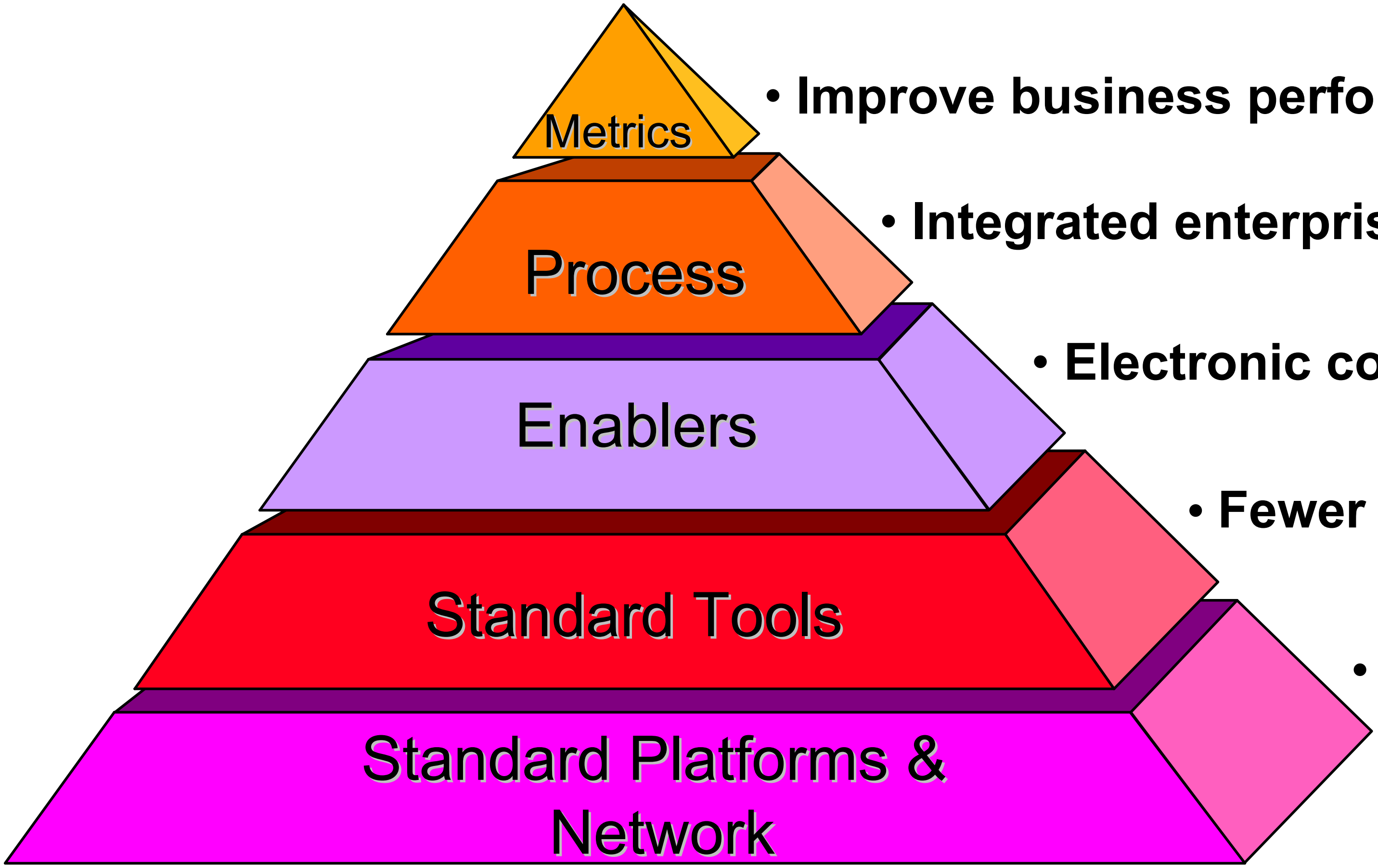
- Strategic transformation from Aircraft Company to
  - Defense Electronics
  - Information Technology
  - Systems Integration
  - Shipbuilding
  - Commercial Electronics
- Proven success record of integrating new businesses
- Cutting-edge technologies - products in demand for 21st century
- $18 billion company

# Electronic Systems

## From Underseas to Outer Space

- 25,000 employees
- 50 major operating locations
- 19 international offices
- $4.7B 2001 sales
- 35% International
- > 300 Key Programs
- > 7,000 Active Contracts

# Product Design Infrastructure ...



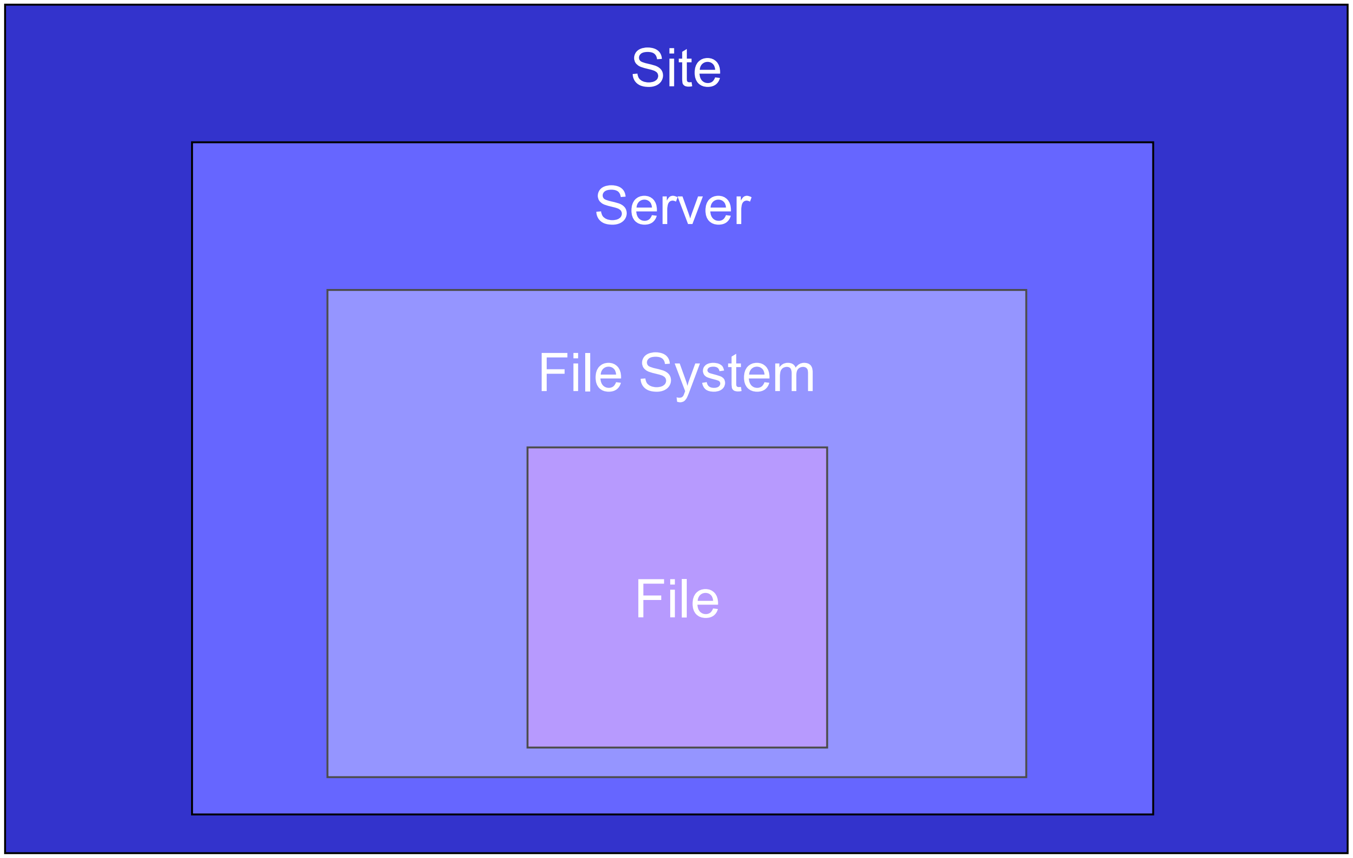
- Improve business performance
- Integrated enterprise process
- Electronic collaboration
- Fewer is better
- Single network

**... Creates Building Blocks for Efficiencies and Improvement**

# Where we began…

- Corporate directive in 1999
- Started with Business Impact Analysis
- Tackled first: large, corporate-wide systems
- Tackling now: department/sector systems
- Complex plan based on assumptions and inter-related decisions
- Like an insurance policy

# Scope of Disaster

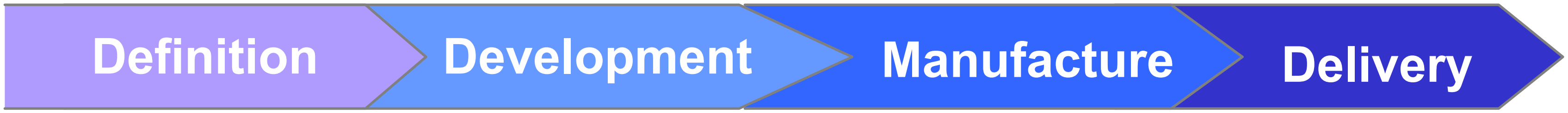


# Assumptions: *Site-Level Disaster*

- Original site and systems are unusable
- Current administrators may not be available
- Corporate recovery team to handle infrastructure, networking, etc.
- End users may be at multiple sites
- Temporary recovery site while primary is restored
- Temporary servers at recovery site while purchasing permanent systems

# Identify Processes

- Consider all processes in the life-cycle development of your product



Definition

Development

Manufacture

Delivery

- Identify processes necessary to continue your business
- Rank processes by criticality

# Identify Critical Data

- Identify data for critical processes
- Data form:  electronic, paper, etc
- Loss affordability:  lose a day, week, etc
- Data availability:  need within a day, week, etc

# Identify Critical Systems

- What systems support critical data
- Servers: file, license, application, compute, etc
- Clients:
  - PCs or UNIX workstations
  - Special software or hardware configurations

# Site Recovery Strategies

- **Hot**
  - **Quickest fail over**
  - **Usually vendor recovery facility**
- **Warm:**
  - **Some infrastructure / systems available immediately**
  - **Data synchronization to slave server**
- **Cold**
  - **Infrastructure in place but not turned on**
  - **Company's remote site**
  - **Vendor mobile unit**

# Hardware Recovery Strategies

- Fail over to hot or warm site
- Stockpile servers and clients for older systems
- Quick-ship new servers and clients
- Consolidate servers

# OS Recovery Strategies

- Restore image
  - Make recovery tape
  - Include application
- Recreate from scratch
  - Install from vendor media
  - Reconfigure system files

# Data Recovery Strategies

- Synchronous updates
- Restore from backups
  - Full backups: point-in-time
  - Incremental backups: nightly
  - Combination backups
  - OS vs third-party backup tool

# Application Recovery Strategies

- Include app in OS image
- Load from scratch and configure
- Need to negotiate temporary license with app vendor

# Cost of Recovery

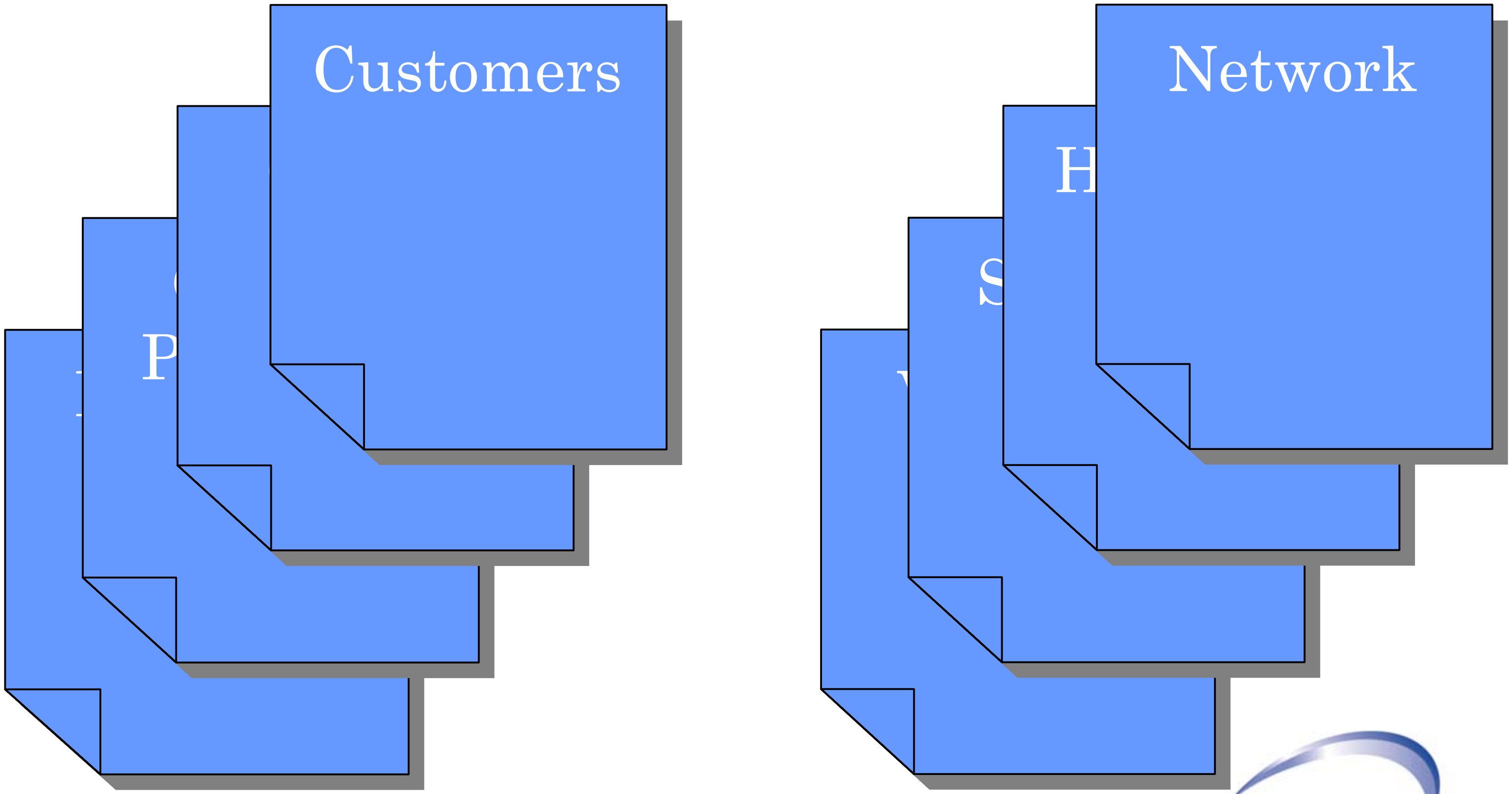
- Infrastructure for recovery site
- Replacement systems for recovery site
- Replacement systems for permanent site
- Offsite data storage
- Labor to execute recovery plan
- Consulting fees

# Documentation

- List disaster assumptions.
- Summarize disaster recovery strategy.
- Detail recovery steps so anyone can execute plan.
- Include contact and support information.
- Store recovery plan away from primary site.

# Contact and Support Information

- Identify information to help execute recovery plan:



# Testing

*"No business continuity plan is valid until it has been tested."* Kelly Williams & Meg Keehan, BCP Testing Techniques and Alternatives, March 2002

- Walk-through test
  - Partial at vendor site
  - Partial using alternate server
  - Full to validate documentation
- Table-top test
- Test all systems and applications
- Validate recovery documentation

# Re-evaluate Recovery Plan

- Test and validate plan periodically
- After adding or replacing systems
- Update recovery documentation
- Store updated recovery documentation offsite

# Our Recovery Plan

- Cold site
- Quick-ship systems
- Load OS and apps from images
- Data and recovery plan stored offsite
- Restore data from full and incremental backups
- Detailed recovery plan
- Perform full walk-through test

# If the disaster occurs…

- Rely on your recovery plan
- Know resources and use them
- Be flexible – but don’t cut corners
- Assess damage at original site
- Document changes to your plan

# Questions