High Availability Solutions for MPE

System Clustering, Replication and Disaster Recovery for 24 x 7 Data Accessibility

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Quest's Mission

To enable business applications
to run nonstop, especially
when under unusually high loads
and even higher end-user expectations

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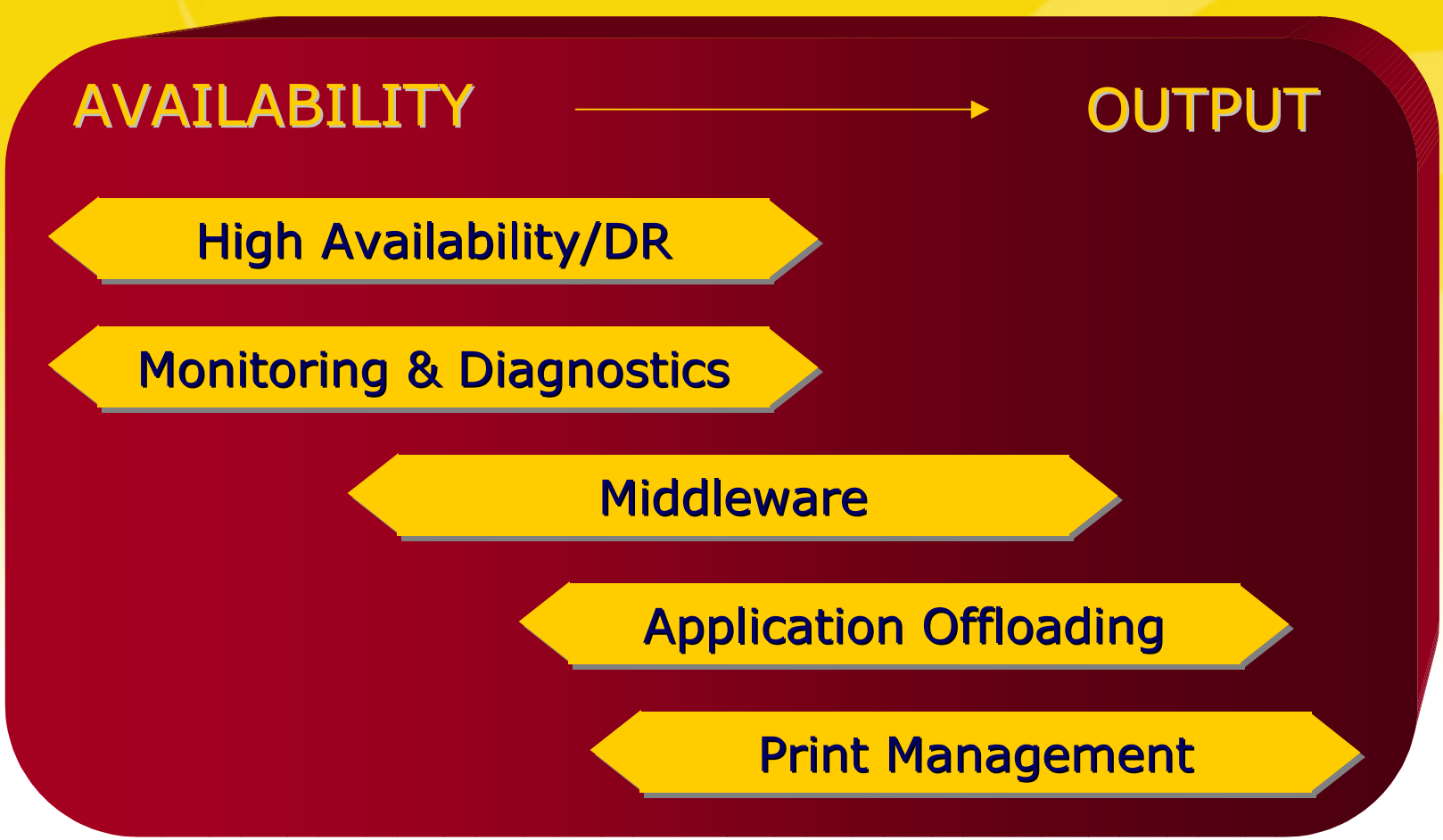
Quest MPE Solutions



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Market Reality

- 80% of application failures are due to software problems and human error; only 20% are hardware or network-related (GartnerGroup)
- Application downtime is extremely costly and can often mar an organization's reputation
- There is a shortage of qualified people to manage today's complex infrastructures

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MPE/iX Environment Needs

- High Availability & Clustering
  - Outgrowing and upgrading systems; developing Disaster Recovery plan
- Middleware & Data Warehousing
  - Developing data warehouse or Web server; deploying client/server apps to access legacy data with open systems
- Output Management
  - Build report warehouse for archiving; instant access to reports

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Solutions for the HP e3000

- High Availability Solutions
  - Real-time access to mission-critical data
  - replication, clustering and disaster recovery
- Middleware Solutions
  - Define a common gateway to open systems environments that's flexible and easy to use
- Output Management Solutions
  - Instant access to reports for viewing and printing - users print only the information they need

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High Availability Solutions

- Continuous data availability for local or remote systems to achieve seamless data sharing
- Products:
  - NetBase® Network File Access (NFA)
  - NetBase® Shadowing
  - NetBase® Statistics
  - AutoRPM™
  - NBCopy™
  - Quark+™

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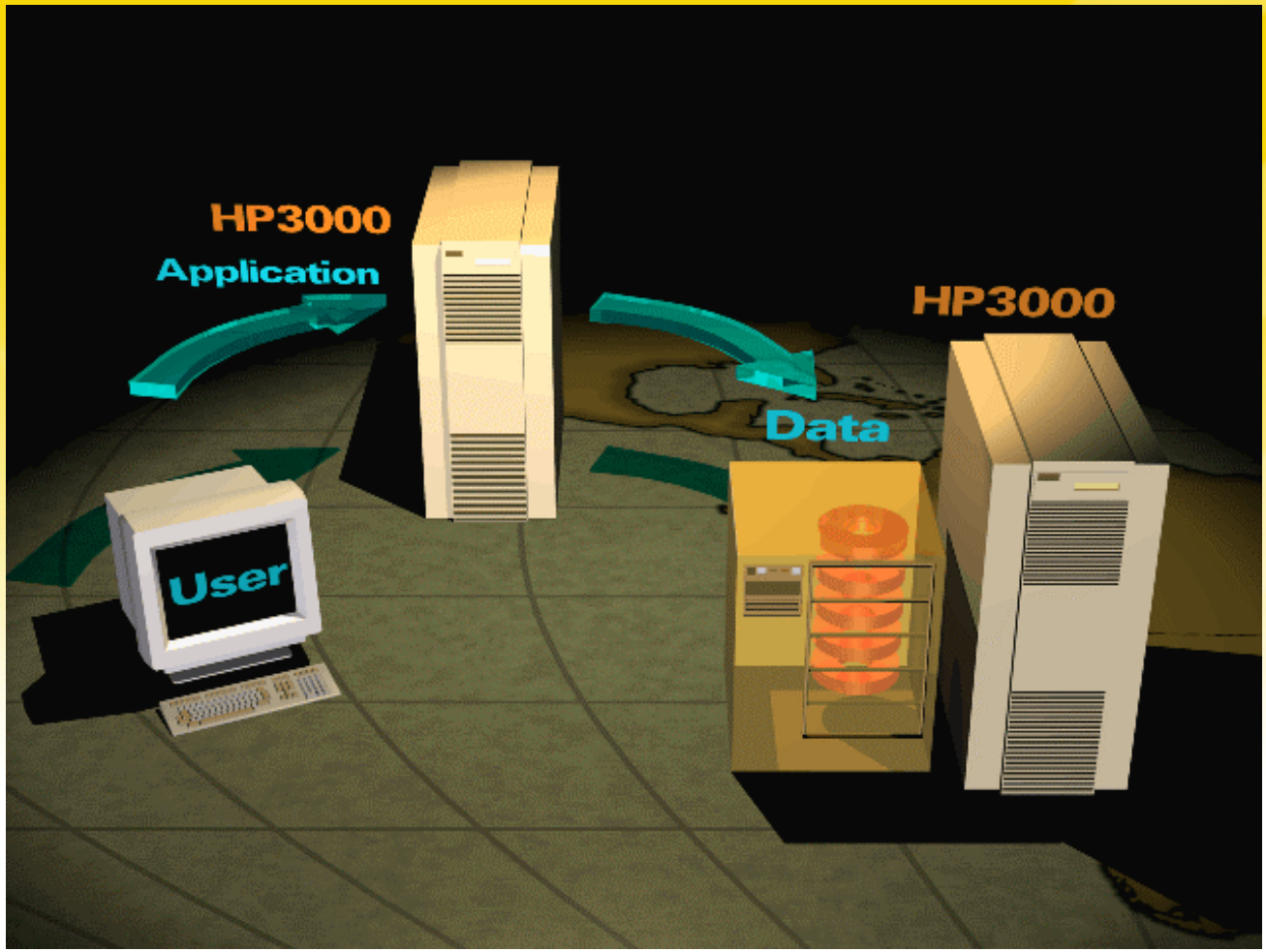
NetBase NFA



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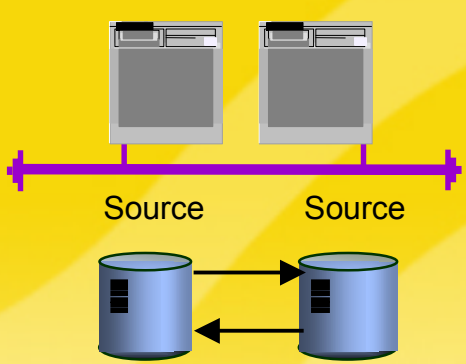
NetBase NFA Strategies

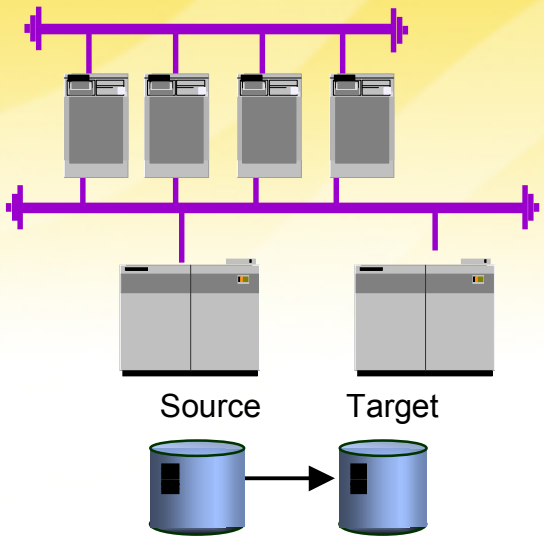
- **Application Server**

  Each primary database resides on its own machine with the associated application. NFA can provide access to other system's data, when required, with directory entries.



- **Database Engine**

  One or more application servers simultaneously access a single primary database for reads and updates. Typical configurations include a shadowed system for high availability.



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NetBase NFA Benefits

- Extremely scalable: thousands of users via multiple application servers
  - Horizontal growth extends HP e3000's high end
  - Distribute users to low-cost front-end engines; minimize application tier costs
- Minimize downtime by adding new servers
- Reduce costs for workgroups, reduce disk costs
- Increase functionality of environment and information availability

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NetBase Shadowing

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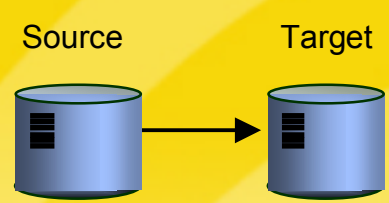
NetBase Shadowing Strategies

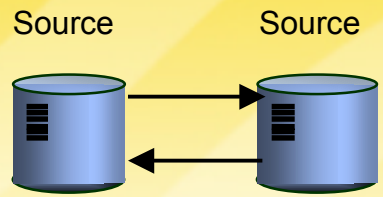
- **Peer-to-Peer Replication**

  Source data acts as “master” or primary source database by replicating data to a “slave” or target database. Selective data can be replicated.



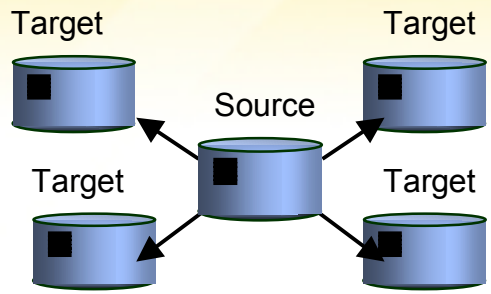
- **Bi-directional Replication**

  Either source or target can replicate different databases and act as a backups for each other.



- **Broadcast Replication**

  Single source, data broadcast to multiple target databases.



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NetBase Shadowing Features

- Real-time, wide-availability data protection
  - Target data always available; zero data recovery after failure; offload queries to secondary machines
  - Eliminate need for tape vaulting and controlling Disaster Recovery Plan with remote replication
  - Online-backup capability on secondary systems, anytime, during production
- Minimal system footprint (compared to log-based solutions)
- Do system maintenance during regular business hours

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NetBase Statistics Features

- Impact Analysis: scenario generator allows a “what-if” approach prior to making changes
- Peak system performance: intelligence on NFA file placement
  - Capture statistics on file access, network overhead, file-access response time and system location
  - Trace facility utility enables developers to trace in detail all file system intrinsic calls
  - Essential for large shops with application calls that are unknown or applications with 4th GL generated code

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AutoRPM

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AutoRPM - Features

- Save money on software licensing
  - Interface built into central directory of HP's Remote Process Management (RPM) facility
  - System administrators can create stubs on one system for software licenses to be executed on another
  - Automatically forwards program executions to another system with software license; executes the program and passes the results back to the user
  - Can setup target application servers to execute against local or remote NFA data

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NBCopy and Quark+ Features

- NBCOPY
  - Copy files over network without NS/3000 services overhead
- Quark+
  - Compress multiple files into archive with directory and account structures intact (like PKZip®)
  - Compression up to 20:1
- NBCOPY and Quark+
  - Distribute “Quarked” archives over network
  - Automatically locate last file sent when DSCOPY stops
  - Both aid in timely remote resynchronization of data on a shadowed system

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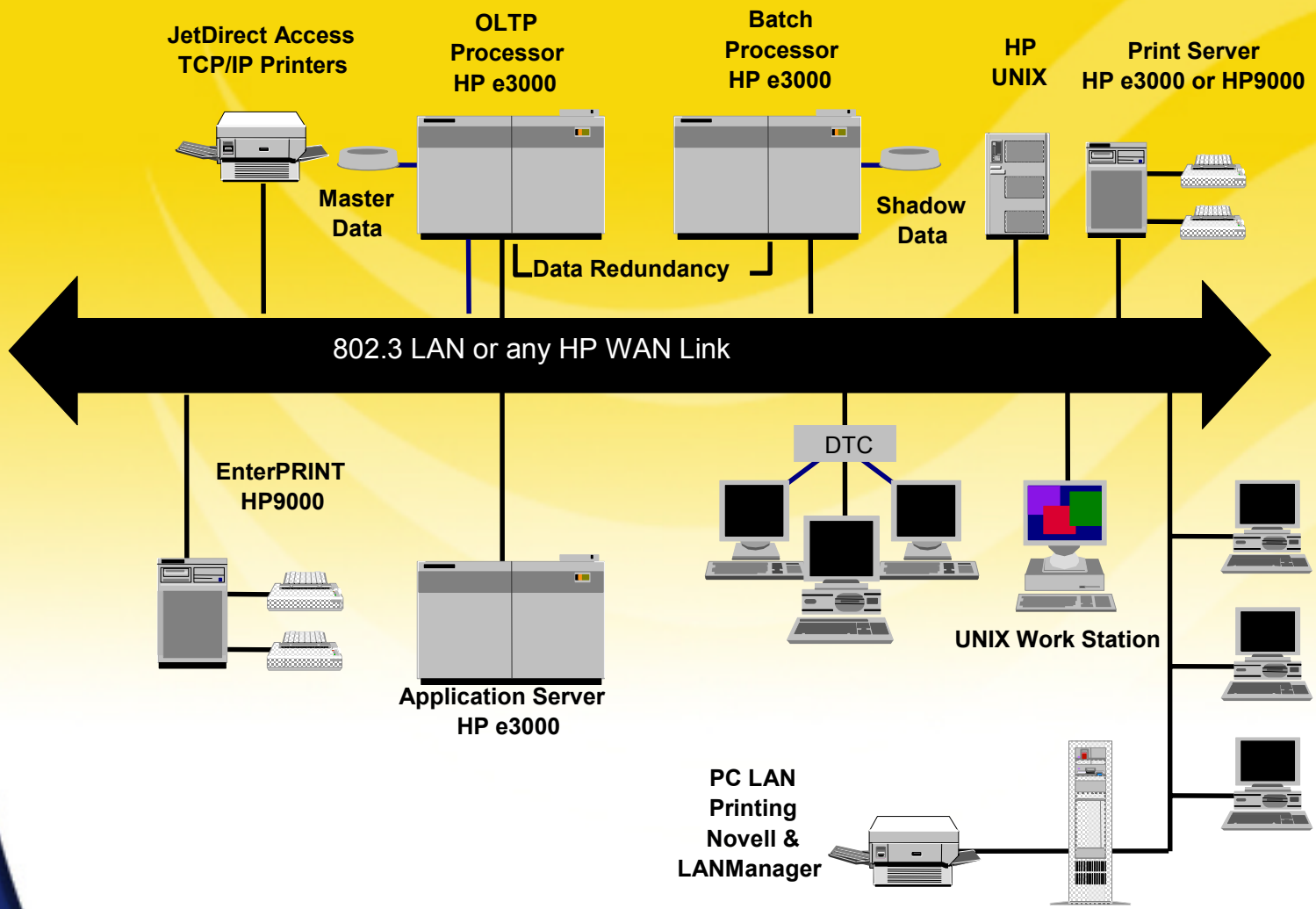
MPE Environment



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Example

Problem:

- Replace mainframe mail-order system
- Volume requirements:
  - 10,000 users
  - 100,000 calls/hour
- Redundancy & fault tolerance mandatory

Solution

Custom Solution:

- Database Write Engine
- Multiple Read Engines
- COBOL Application
  - Multiplexing RPCs
  - Automatic retry of failed RPCs
- Hot Spare DRP Engines

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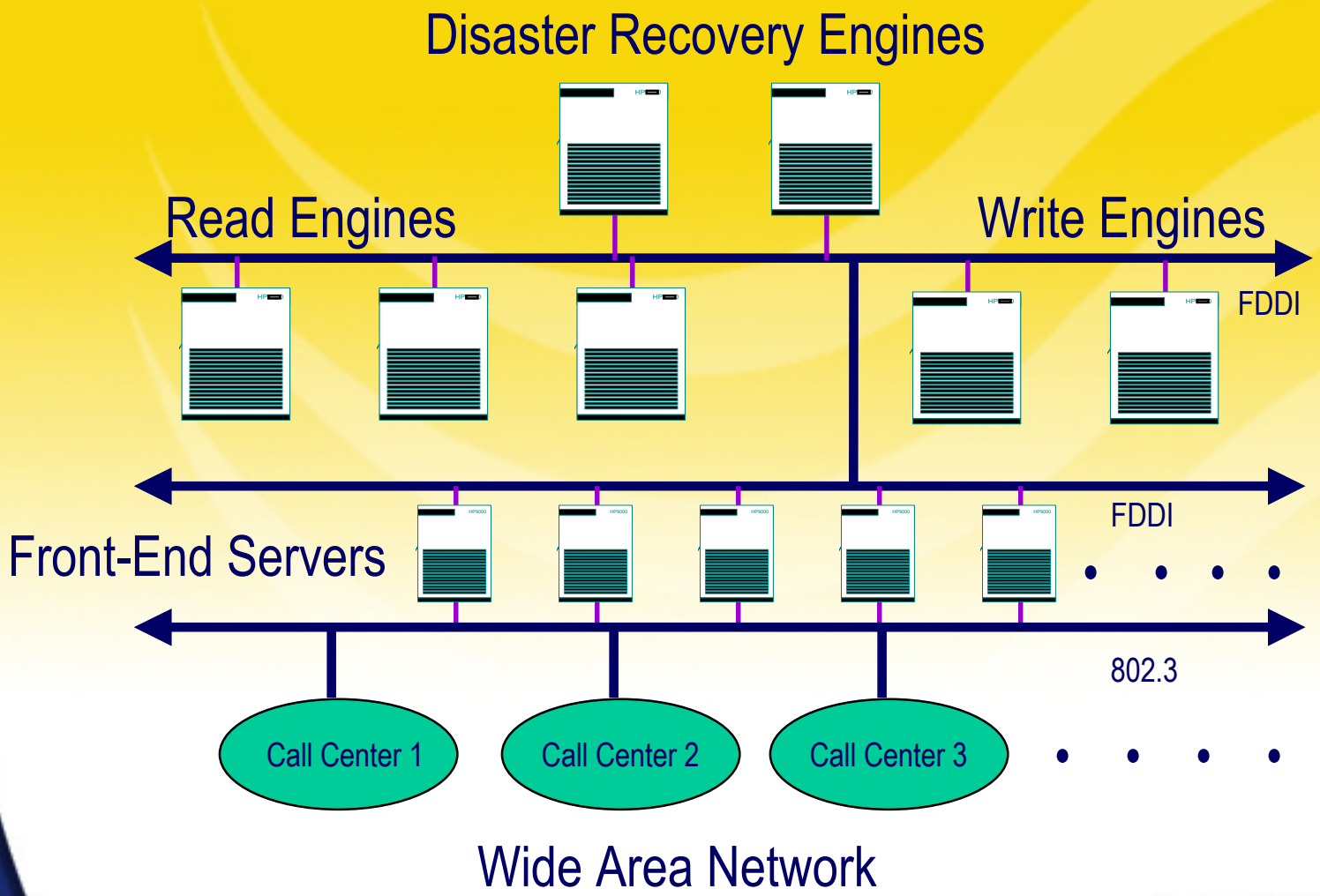
Solution Mechanics



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High Availability Clients

- Agilent Technologies
- American United Life
- Mercury Insurance
- MicroWarehouse
- PayUSA
- TTC

Partners

- McKesson HBOC – AMISYS
- Smith Gardner & Associates

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Quality

Quest *is* Quality

- Easy to use and install
- World-class support
- Complete product families
- Quick ROI (hours/days)
- Technology expertise

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