Paychex
EXADATA & MAA

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About Paychex, Inc.

- **Paychex is a leading provider of payroll, human resource, insurance, and benefits outsourcing solutions**

- **Founded in 1971 - Serves approximately 570,000 small and medium-sized businesses.**

- **Based in Rochester, NY – 100+ offices in U.S. and Germany**

- **12,000+ Employees**

- **Fiscal 2013 highlights (ended May 31, 2013):**
  - **$2.3 billion total service revenue**
  - **$569 million net income**

- ***Computerworld* list of "Top 100 Best Places to Work in IT"**

- ***Information Week* list of "Top 250 Technology Innovators"**
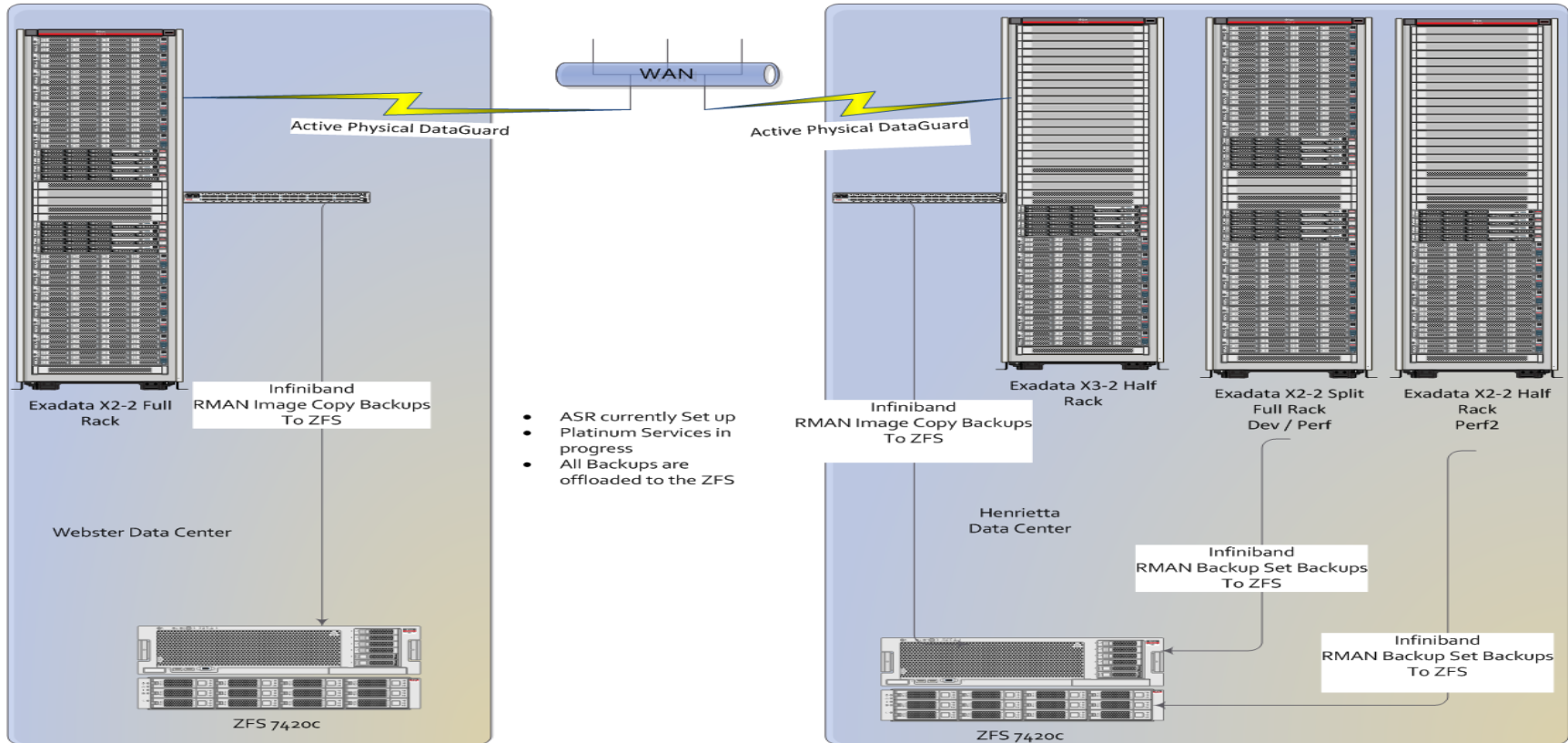
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Paychex Database Operations & Services

- **Located in Webster, NY - 15 Miles NE of Rochester**

- **3 Managers – 2 Oracle & 1 SQL Server**

  - **27 DBA's – 18 Oracle, 9 SQL Server**

- **Database Security Analyst**

- **Lead Oracle Database Architect**

- **Team Responsibilities :**

  - **Design and Standards, Project Participation, Database Security**

  - **Installation, Maintenance, Patching, DB Performance Management**

  - **365x24x7 On-Call Support**

  - **Exadata Platform**

  - **Active Data Guard**

  - **GoldenGate**

  - **Oracle Enterprise Manager**

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ENTERPRISE REPORTING ENVIRONMENT

- **EXADATA –** *ENABLER* **FOR A NEW OPPORTUNITY**
  - **Enterprise Reporting Warehouse**

- **PAYROLL Transactional DBs**
  - **Nine 2-Node RAC Clusters, HP DL785, RH LINUX, 11.2.0.2 DB, 7 TB**

- **Oracle GoldenGate sends transactions to EXADATA**
  - **Loads to Staging Tables**

- **Oracle Data Integrator transforms**
  - **Loads Enterprise Reporting Database**

- **Oracle Business Intelligence used to create reports**

- **Active Data Guard used for Disaster Recovery**

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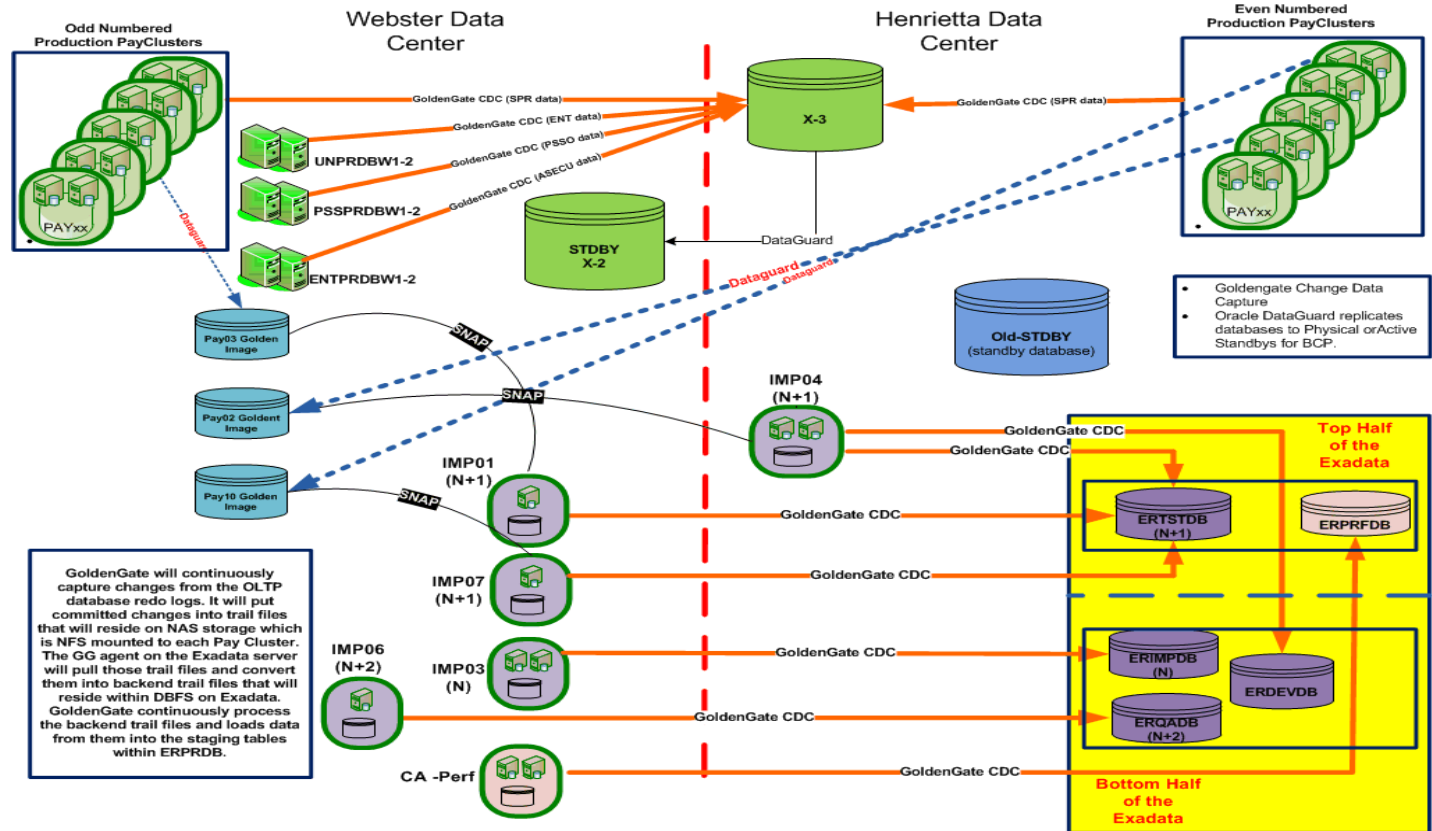
MAA ASSESSMENT

- **RECOVERY POINT OBJECTIVE – 0 DATA LOSS**

- **RECOVERY TIME OBJECTIVE – 2 HOURS**

- **Fault Protection "Out of the Box"**

  - **Cell Server, Disk, Network, Database**

- **Review of Data Guard Configuration**

  - **Active Data Guard used to update Physical Standby DB**

  - **Currently using ASYNC mode (SYNC used for transactional DB's)**

- **Use of Test and Performance Testing Platform**

  - **Support Testing through use of Real Application Testing tool**

  - **Validate Operational and Recovery Best Practices, Test Patches & SW changes**

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- **Monitoring/Alerting**
  - **Validation of Auto Service Request (ASR)**
  - **Review Oracle Enterprise Manager integration**
- **Patching – Minimum once/6 months**
  - **Working with ACS to begin Platinum Services**
  - **2-4 Patching events / year**
- **Implement FLASHBACK**
  - **Logical corruption protection**
- **Enhance Backup/Recovery**
  - **ZFS Storage Appliance**
- **Implement health check process**
  - **Run and review exachk weekly**
  - **Standard DB Health Checks**

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7420 ZFS STORAGE FOR BACKUPS

- **One in each data center**
  - **Backing up both Prod and Standby**

- **RMAN Nightly Incremental with Image Copies**
  - **Using RMAN Catalog**

- **Moving GG files (Trail files) off Exadata to ZFS**

- **We are getting 9TB/Hour backup rates!**

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TO-DO LIST

- **EXTEND ZFS STORAGE FOOTPRINT – Oct 2013**

- **SCHEDULE PATCHING WITH ACS – Nov 2013**

- **UPGRADE OEM TO 12c – Feb 2014**
  - **Evaluating use of the ODA for our OEM platform**

- **CONFIGURE USE OF DATA GUARD BROKER - Dec 2013**

- **UPGRADE GG TO 11.2 or 12 - 2014**
  - **Replace GG Monitor with 12c EM Plug-In**

- **DETERMINE TIMELINE FOR ORACLE DATABASE 12c UPGRADE - 2014**

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PARTING THOUGHTS, LESSONS LEARNED…

- **Platform and Application are evolving together**
  - 20% client base to date, big push in 2014
- **Dedicated Team within DBA Organization**
  - But don't leave IT OPS Partners out of the discussion….
- **Work with Oracle – They built it, they are the experts !**
  - End-End Single Vendor Support
  - Unified Monitoring of all components
- **3x Disk Mirroring – Not using it, paid the price once**
- **Practice Fail-Over and other recovery scenarios**
- **Standard Oracle DB – Same MAA Best Practices Apply !**
- **THANK YOU and have a GREAT week !!**

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