Information Technology and Facilities Report

Richard Morgan
Vice President & CIO

ERCOT Board of Directors
June 15, 2010
Highlights

- **New Data Centers:** Construction of the new data centers in Bastrop and Taylor continues to be on schedule and under budget. These data centers provide additional capacity needed for ongoing ERCOT operations. Highlights include the following:
  - Installation of permanent power at both locations was completed in May
  - Final integration and commissioning is planned to begin in early July, approximately one month ahead of original schedule
  - Taylor City Council approved requested property tax abatement for Taylor Computer 3.

- **Data Center Relocation**
  - Completed contract for Bastrop data center dark fiber installation
  - Major equipment vendor site/due diligence visits completed
  - First equipment Requests for Proposals scheduled for June release

- **Nodal CMM test:** The first test cycle for the Nodal Credit Monitoring and Management (CMM) application was run with credit information feeds from the Congestion Revenue Rights and Day Ahead Market. The test was completed with no major issues and met the planned objectives. CMM provides exposure and credit availability measures for Market Participants, and is a critical application for Nodal Go-Live.
Highlights

- **Network Model Management System (NMMS):** System has experienced multiple reoccurring restarts which impacts Market Participants and internal users. The restarts cause “work in progress” input data to be lost, requiring re-entry. Vendor engaged to provide on-site resources for problem isolation and resolution.

- **Data Management:** A plan was developed to reduce the Enterprise Information System (EIS) database size by 27 TB across all environments by retiring duplicate data. This will be accomplished by eliminating the storage of pre-parsed data; instead, code will be developed to parse the data on demand. Optimization of data storage reduces infrastructure costs and is a key part of the Information Lifecycle Management initiative.

- **Employee Benefits System:** IT worked with the vendor of the Finance & HR Enterprise Resource Planning system to resolve a vendor system issue that would have prevented Employee Benefits open enrollment. A patch was deployed successfully resulting in no impacts to ERCOT employees.
Agenda and Commentary (continued)

Highlights

▪ Retail transaction processing unplanned outages
  – 5/2 (166 Minutes) – A server was started incorrectly during system restoration after the prior weekend’s planned maintenance effort, causing an outage of the application. Application services were restarted correctly to resolve the issue.

  – 5/7 (315 Minutes) – Disk space constraints during an EDI archiving process caused transaction failure resulting in outage of the application. Files were purged to retrieve disk space and monitoring was implemented to generate advance alerts. The vendor has been contacted for a permanent resolution.

  – 5/25 (179 Minutes) – A troubleshooting effort to enhance batch job performance on 5/24 caused incorrect closure of the day’s batch run, resulting in batch restart failure on 5/25. The issue was resolved by database performance tuning and a reset of the batch job.

▪ TML Report Explorer Degradation: A code migration from the prior weekend’s planned maintenance effort caused performance degradation of TML Report Explorer on 5/2 for 734 Minutes. Database query and indexing were tuned to improve the performance and resolve the issue.
Highlights

- **Texas Market Link (TML) and TML Report Explorer unplanned outages**: Enterprise Application Integration (EAI) services became unresponsive causing application failure on 5/6 (36 Minutes), 5/12 (110 Minutes), 5/13 (28 Minutes) and 5/17 (121 Minutes). Application changes made during the prior planned release effort caused database performance which caused the application to fail. Services were recycled to restore the application. As part of the resolution steps taken, the application changes were rolled back and fixes to the changes are currently in testing phase.

- **EMMS Market Management System**
  - Long term problem causing missed Real Time Balancing markets resolved
  - Final change considered successful
  - Issue has not reoccurred and can not be recreated since last change applied.
2010 Net Service Availability

Through May 31st, 2010

- Transaction Processing SLA Target – 99.9%
  - Business Hours (BH): 99.9%
  - Off Business Hours (Off BH): 99%
- TML SLA Target – 99%
- MarkeTrak SLA Target – 98%
- TML Report Explorer SLA Target – 99%
- Retail API SLA Target – 99%
- Real Time Balancing Market SLA Target – 99.93%
- Frequency Control Target – 99.93%

92.00% and below

Transaction Processing (BH) | Transaction Processing (Off BH) | TML | MarkeTrak | Wholesale Total | TML Report Explorer | Retail API | Realtime Balancing Market | Frequency Control

99.13% | 99.16% | 99.78% | 99.97% | 100% | 99.75% | 100% | 99.93% | 99.99%

Retail & Wholesale Operations | System Operations

June 15, 2010
May 2010 Net Service Availability

Transaction Processing SLA Target
- Business Hours (BH): 99.9%
- Off Business Hours (Off BH): 99%

TML SLA Target
99%

MarkeTrak SLA
Target – 98%

TML Report Explorer
SLA Target – 99%

Retail API SLA
Target – 99%

Real Time Balancing Market
Target – 99.93%

Frequency Control
Target – 99.93%

92.00% and below

96.91% 98.95% 99.22% 100% 99.22% 99.99% 100% 100%

Transaction Processing (BH) Transaction Processing (Off BH) TML MarkeTrak Wholesale Total TML Report Explorer Retail API Realtime Balancing Market Frequency Control

Retail & Wholesale Operations System Operations

June 15, 2010
5/7 (315 Minutes) – Disk space constraints during an EDI archiving process caused transaction failure resulting in outage of the application. Files were purged to retrieve disk space and monitoring was implemented to generate advance alerts. Also vendor has been contacted for a permanent resolution.

5/25 (119 Minutes) – A troubleshooting effort to enhance batch job performance on 5/24 caused incorrect closure of the day’s batch run, resulting in batch restart failure on 5/25. The issue was resolved by Database performance tuning and reset of the batch job.

5/26 (33 Minutes) – After resolution of an outage, services were reset incorrectly on 5/25, causing failure of the batch process on 5/26. Services were reset with correct configuration to resolve the issue. Further, team training was conducted to prevent recurrence.

May 2010 Retail Transaction Processing Availability (BH) – 96.91%
5/2 (166 Minutes) – A server was started incorrectly during system restoration after the prior weekend’s planned maintenance effort, causing outage of Retail processing application. Application services were restarted correctly to resolve the issue.

5/25 (60 Minutes) – A troubleshooting effort to enhance batch job performance on 5/24 caused incorrect closure of the day’s batch run, resulting in batch restart failure on 5/25. The issue was resolved by Database performance tuning and reset of the batch job.

5/26 (44 Minutes) – After resolution of an outage, services were reset incorrectly on 5/25, causing failure of the batch process on 5/26. Services were reset with correct configuration to resolve the issue. Further, team training was conducted to prevent recurrence.
May 2010 TML Availability Summary

5/6 (36 Minutes), 5/12 (110 Minutes), 5/13 (28 Minutes) and 5/17 (121 Minutes):
Enterprise Application Integration (EAI) services became unresponsive causing
application failures. Application changes made during the prior planned release effort
caused database performance issues leading to EAI response failure. EAI services
were recycled to restore the application. As a full resolution, application changes were
rolled back; fixes to the changes are currently in testing phase.

5/17 (25 Minutes) — Database configuration problem caused failure of the application.
Configuration was changed to resolve the issue.

May 2010 TML Availability – 99.22%
Target – 99%
MarkeTrak Availability Summary

May 2010 MarkeTrak Availability Summary

May 2010 MarkeTrak Availability – 100%

Target – 98%
May 2010 TML Report Explorer Availability

5/6 (36 Minutes), 5/12 (110 Minutes), 5/13 (28 Minutes) and 5/17 (121 Minutes): Enterprise Application Integration (EAI) services became unresponsive causing application failures. Application changes made during the prior planned release effort caused Database performance issues leading to EAI response failure. EAI services were recycled to restore the application. As a full resolution, application changes were rolled back; fixes to the changes are currently in testing phase.

5/17 (25 Minutes) – Database configuration problem caused failure of the application. Configuration was changed to resolve the issue.

May 2010 TML Report Explorer Availability – 99.22%
Target – 99%
Retail API Availability Summary

May 2010 Retail API Availability Summary

5/28 (5 Minutes) – ERCOT undertook an emergency outage to apply a patch related to report download issues caused when the request was received from a different time zone. The patch was applied to resolve the issue and the service was restored.

May 2010 Retail API Availability – 99.99%

Target – 99%
May 2010 Real Time Balancing Market Availability Summary

May 2010 Real Time Balancing Market Availability – 100%

Target – 99.93%
May 2010 Frequency Control Availability Summary

May 2010 Frequency Control Availability – 100%

Target – 99.93%
Release Management Metrics (3-Year Releases by Month)
Release Management Metrics (Nodal vs. Zonal Releases)

Note: 2010 metrics are YTD
## ERCOT Public Website Metrics (May 2010)

<table>
<thead>
<tr>
<th>Name</th>
<th>Reports</th>
<th>Status</th>
<th>Visits</th>
<th>Avg. Time on Site</th>
<th>Bounce Rate</th>
<th>Completed Goals</th>
<th>% Change</th>
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**Legend**

- **Bounce Rate**: % of single page visits;
- **Completed Goals**: Measure of specific predefined actions completed by visitors;
- **% Change**: % change in visits relative to previous month
Metrics Guide – Nodal Production

- **Aggregate Energy Management System (EMS)**
  - Measure of the availability of the software that provides real time grid control capability. Calculated as average of deployed & monitored components availability

- **Outage Scheduler**
  - Measure of the availability of the software to manage the submission, modification, deletion of schedules for various types of transmission and generation systems outages

- **Network Model Management System (NMMS)**
  - Measure of the availability of the software to manage the ERCOT network model. Calculated as availability of model management core engine (IMM)

- **Congestion Revenue Rights (CRR)**
  - Measure of the availability of the software to manage the financial instruments that help Market Participants hedge against losses due to transmission constraints
Nodal Production – May 2010 Net Availability

May 2010 Net Availability for Nodal Production systems

<table>
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<tr>
<th></th>
<th>Aggregate EMS</th>
<th>Outage Scheduler</th>
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<th>CRR</th>
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