

# Improving LMS Stability and Performance in DC8 Ashburn

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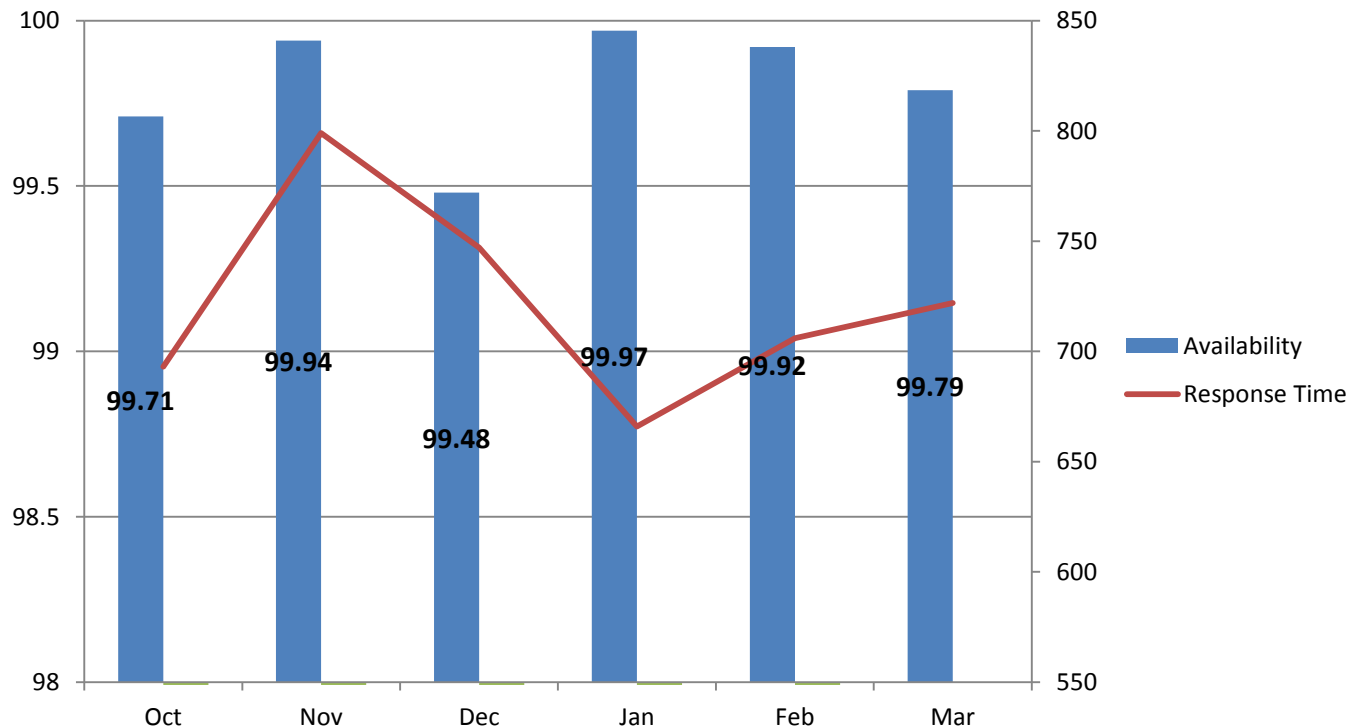
**Availability Report Card for October 2013 – March 2014**

**Transaction Performance Report Card – Last 90 Days**

**10 Point Stability Action Plan**

# Availability Report Card for LMS in DC8 Ashburn

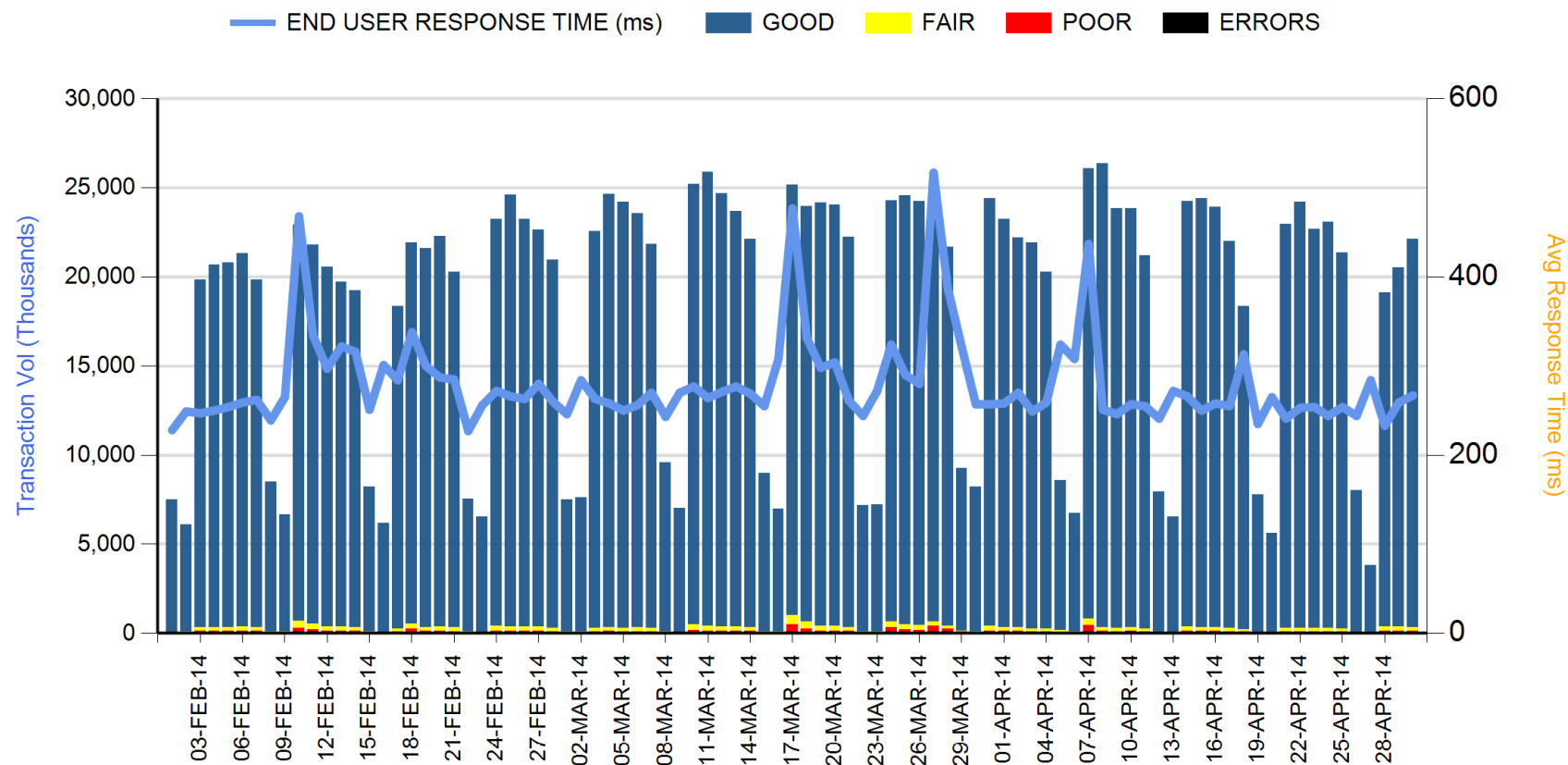
## October 2013 to March 2014



LMS		Oct 2013	Nov 2013	Dec 2013	Jan 2014	Feb 2014	Mar 2014
ASH - LMS	Availability	99.71	99.94	99.48	99.97	99.92	99.79
ASH - LMS	Response Time	693	799	747	666	706	722

# Transaction Performance Report Card for LMS DC8 Ashburn - Last 90 Days

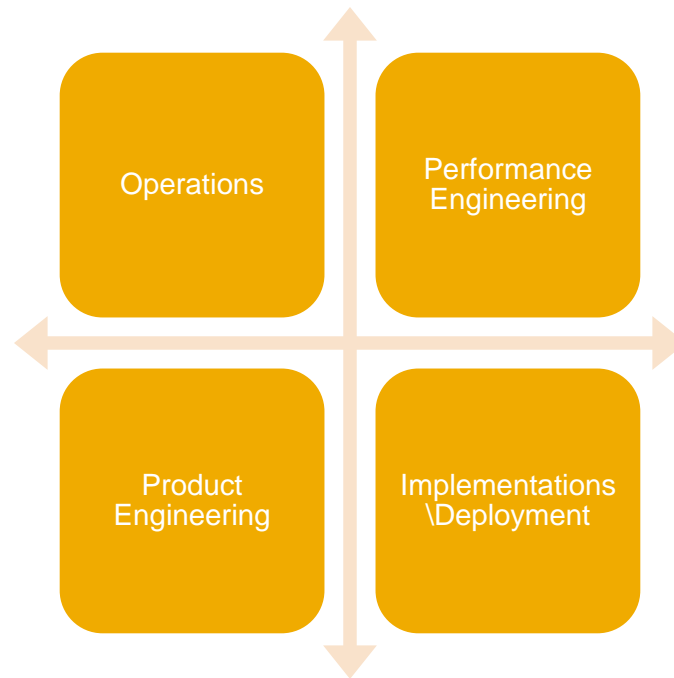
LMS Total Transactions by Volume and Average Response Time



# Strategy for LMS Stabilization

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**In April, Joint Task force of Operations, Product Engineering, Performance Engineering and Deployment team have analyzed the issues over the last 6 months and highlighted the top 10 concerns and defined the initiatives in order to mitigate these issues**



# LMS Stability – 10 Point Action Plan

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- I. Customer Migration to Revised High Availability database architecture that will provide increased capacity and scalability for growth  
Status – In Progress, Customer Stage and Production environments being moved in phases, majority of customers will be migrated by Q3 of 2014
- II. Increased Focus on Database Performance
  - Collaboration with Engineering to mitigate SQL caching issues – DB validation already in place, majority of code changes being delivered in b1405
  - Audit and validation of all production database parameters and synch across the datacenters – Completed
  - Tuning of application SQL code to improve overall database performance - Ongoing
- III. Modification to the Refresh Org Dashboard Data APM to limit the data display to the last 18 months to improve APM performance and overall impact to the database – Completed in b1405
- IV. LMS Product Engineering/QA teams to test quarterly release upgrade process against large data sets to prevent spillover during release upgrades - Ongoing

# LMS Stability – 10 Point Action Plan (cont'd)

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- V. Product Engineering team to ensure weekly patches do not have database changes to ensure the patch deployment process is non-disruptive – [Ongoing](#)
- VI. Increased focus on Change Management processes, additional focus on better management of maintenance activities, post-maintenance verification steps and impact to customers– [Ongoing](#)
- VII. New dedicated Operations Performance Management team for proactive/daily analyses of Systems Performance – [Target Q3 2014](#)
- VIII. Operations and Product Engineering collaboration on enhancements to LMS standalone Single Sign On (SSO) including proactive failure detection and updated troubleshooting and mitigation processes – [Completed](#)

# LMS Stability – 10 Point Plan

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- IX. Review management and launching of application extensions to ensure stability and scalability in the current architecture - Ongoing
- X. Product Engineering team to add code within application framework to enable connector job, background job, and report job monitoring to proactively engage Operations support team - First phase of this monitoring enablement to be deployed in b1405 with iterative development in future releases





Thank You!

# Appendix – RCA for Response Time Spikes in Transaction Performance Report on Page 4

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*February 10<sup>th</sup> – Closed connection errors seen on the data base. Engineering recommended change to database parameters for connections*

*March 17<sup>th</sup> and 18<sup>th</sup> – Spike in database performance caused due to excessive connection pooling and Refresh Org Dashboard APM process running for complete data sets. Engineering recommendations were implemented and Org Dashboard APM was temporarily turned off to mitigate the issue. Refresh Org Dashboard APM functionality being updated in b1405*

*March 29<sup>th</sup> – Network routing change was missed on one of the servers during approved change implementation which impacted LMS connections to the BizX environments in DC4. Issue corrected, improved change verification process change implemented.*

*April 7<sup>th</sup> – Weekend patch deployment process caused an issue not identified in the post deployment verification process. Issue resolved with Engineering support, improved post-deployment verification process change implemented.*

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