

## Technical Bulletin

### Performance Investigation

*Issued: February 16, 2007*

#### Summary:

We have several requests to look into the general category of “performance” issues. After an initial analysis there are a lot of different problems reported with likely very different root causes (i.e. Hardware, network, application issues, infrastructure, etc). This is an effort to consolidate and categorize the specific complaints into known problems for further diagnosis and resolution.

#### Current Problem List:

Reported Problem	Description	Working Theory (used for diagnostics next steps)	Current Status
LOR Order Entry Pages (possibly specific to using within Portal)	Some sites complain of very slow load time for all LOR order entry pages when coming in via the Portal.	Load LOR screens require several round trips when going through the portal. Slow or highly “latent” network or possibly local client workstation issued could make this very slow. (See also interconnect issue)	Sima Parikh and Susana Kacens are compiling a list of open National Help Desk tickets with reported slowness and contacting customers to determine if problem still exists or any root problems can be identified across the entities. Additionally, Sima will be working to identify how extensive the combination of 510/530 on XP is.
ePre Login/ Today /Inbox Slowness	Some ePre sites report excessive time to login or to navigate to the “care360 Today – Home” page and inbox.	Changes implemented on 1/25 in conjunction with those proposed for 2/1 to address various db indexes are appearing to improve the responsiveness of the system.	Gathering baseline response times and will re-assess post 2/1 index changes.
Base user login/inbox slowness	Separating the scenarios of base and premium user		Reviewing data to determine if specific query/index changes could help
New Results page on Portal	Some base customers report slower times to bring up “New Results” page.	Changes implemented on 1/25 in conjunction with those proposed for 2/1 to address various db indexes are appearing to improve the responsiveness of the system	Gathering baseline response times and will re-assess post 2/1 index changes
Find Results page on Portal	Some sites report long wait time to get back specific query for lab results (i.e. All labs for 24 hr period for the site)	Proposing adjustment to lab report query in addition to index changes	During 2/1 Green Zone

ePre – Slow time to “Approve” script	User clicking on “Approve” on some sights takes excessive time (i.e. Several minutes)	Believe this may have been a by product of the intermittent slowness issues. Will track to see if occurrences still exists	Monitoring
Intermittent result import slowness	Noticed some very intermittent slowdown of lab imports. Most go in less then a second and then we will see them all pause and take several minutes.	Changes made to modify the index for patient date of birth, name.	Change implemented 1/20 – no reported issues since. Requesting Ticket closed.
Stability	When a node goes down requests continue to queue causing the system to slowly degrade	JDBC connection pools	Modifications verified in Stage and being deployed into Production 2/10
Slowness reported when saving an allergy	Customer reports it is taking from 45-120 secs to save an allergy		

### System Diagnostics Needed

These are not specific to any issue but when they are deployed we will use them to assist as needed:

- **Gomez Last Mile**
- **Gomez Agent**
- **Deploy interconnect monitoring job to assess interconnect performance**
- **AppSight**
- **Network Monitoring – need some visibility into ongoing network utilization between nodes to help rule out network as cause in some issues**
- **Database Traces – we continue to investigate ways to obtain a full db trace including the plans in a production like environment**

### Other Possible Systemic Issues to Investigate

Some other observations we have made that could affect multiple use cases but don't yet have supporting evidence:

- **Redline** – ongoing efforts to reduce page size and roundtrips for 6.0 release but Redline has page compression feature that we have tested and may have end user impact as a short term mitigation for some issues. Redline needs configured in stage and then in production.
  - Redline has been configured in Stage – we need to confirm licensing/rules applied and then load testing will commence in Stage
- **Database Backups** – backups are exceeding a reasonable time period and are often taking in excess of 4 days to complete which can consume up to 25% of the processing
  - Discussions/options under review
- **Network Connectivity between SAN/Switch** – request entered via Service Desk to install I/O Stat in prod to enable monitoring of wait times – Completed 2/7

### Action Items:

1. MedPlus Ticket created to extend the Stage environment to support a copy of the production database

- a. Create a separate database instance to support performance testing/modifications
2. DB Traces – John Koehl/Wendy Neu to obtain complete db traces –
  - a. Got another trace in Production (2/8) at 2:30 which includes the stat line
3. Hardware configuration review for 510/530 and XP – Sima to investigate and report back
4. Verizon filtering – David Rapperport/Sima to explore this further
5. AppSight – hardware available by end of this week for Prod, with application available in Production by 2/19.
6. Monitoring script for table/db sizing.