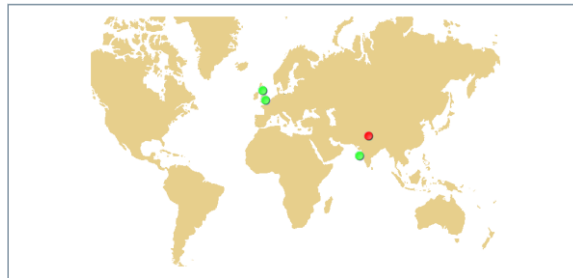# PG-OBS™ BAU REPORT MONTH 14

HALS LTD

END USER PERFORMANCE - MONITORING SOLUTION

FOR A BUSINESS AS USUAL

PG-OBS - MANAGED CONSULTATIVE SERVICE™

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Preamble

The Objective

The objective of the current engagement is to operate the PG-OBS Managed Consultative Service (MCS) in a Business As Usual state, to provide real-time end-user performance monitoring, quantify the day to day performance of the *OneTouch* application in particular and to quickly determine the area of root cause of any performance issues seen by the end-users.

End-users have been complaining that the response of the *OneTouch* application can be both erratic and slow, as the key business application at the local and remote offices this will be the focus of the monitoring.

In addition IMS will review similar slow down/lock up issues for various processes/systems within regional offices such as:

- PC Boot time
- Windows boot time
- General applications response time
- Branch File & Print
- Inter office response time consistency

These performance issues within the estate are analysed by using the IMS PG-OBS end to end monitoring solution, along with taking a holistic view of the enterprise being monitored.

OneTouch Findings

In a previous report we noted:

The key root cause of the performance problems experienced by the end users is the Oracle database response times. This is directly related to how the OneTouch Application servers access the Oracle database servers and points to the application configuration or code.

At random the response time delivered from the databases to the Application servers increases by a factor 10 for several minutes. PG-OBS will track database performance going forward and pin point timing and severity of the issues.

The Oracle database response times and their interaction with the application appear to remain at the centre of the issues.

OneTouch **- a front office CV management solution**

OneTouch has been implemented by Hals for procuring and managing client CV's and as such is fundamental to the business.

We have some historic troubleshooting experience and information at the technical level about the *OneTouch* application.

The system at Hals consists of 1 (failover) ACE 20 load balancer, 52x Web/Application servers, 3 dbase servers. There are also various-servers used for special access. The *OneTouch* client is rolled out to and used by approximately 5,000 users distributed over several international offices and therefore should be designed for scalability.

The end-users experience on the user interface is a very slow response and the client may erratically stop responding. The Pilot was designed to monitor ~600 of these end users to provide a practical sample for the subsequent rollout to approximately 1,800 key end users.

For the purpose of the BAU Pilot project at Hals we implemented the PG-OBS solution which is a tool to monitor response times of the end-users, performance of client/server applications including all business transactions and pinpoint bottlenecks in the enterprise infrastructure.

PG-OBS monitors:

In the branch offices

- Start-up time and log in time on each PC
- CPU and Memory load over time on each PC
- Availability of each system that the users access
- Response time of each system that the users access

In the WAN network

- WAN Network connection stability and quality for each office

In the hosting centre

- Server LAN stability and quality
- CPU and Memory load over time on each Windows based server
- Availability of each system that the Windows based servers access
- Response time of each system that the Windows based servers access

PG-OBS provisions:

The PG-OBS monitoring system consists of a lightweight agent that may be installed on Windows based PCs and servers.

The agent monitors resource usage on the device it is installed on and it monitors all network communication to and from the device. From the network monitoring the agent calculates response time and availability of the servers that the users access.

Condensed information from each agent is sent to a central PG Enterprise Manager for further handling and storage. Aggregated data from all the monitoring points the PG agents provide delivers solid information about system performance.

OneTouch environment - PG-OBS delivers

We have installed PG-OBS agents on selected end user PCs (to be a phase rolled out to the entire estate) and most of the *OneTouch* servers in order to identify the *OneTouch* system component/s that may cause performance problems that impact the end users.

PG-OBS delivers:

- Load graphs for each individual PCs

- *OneTouch* application response time graphs monitored in each office

- Response time graphs for each *OneTouch* transaction type (sub-URL)

- Network quality from each office to the hosting centre

- Data flow path from the users to the Application servers

- Load graphs for each individual Application server

- Response time from each *OneTouch* database to the Application servers
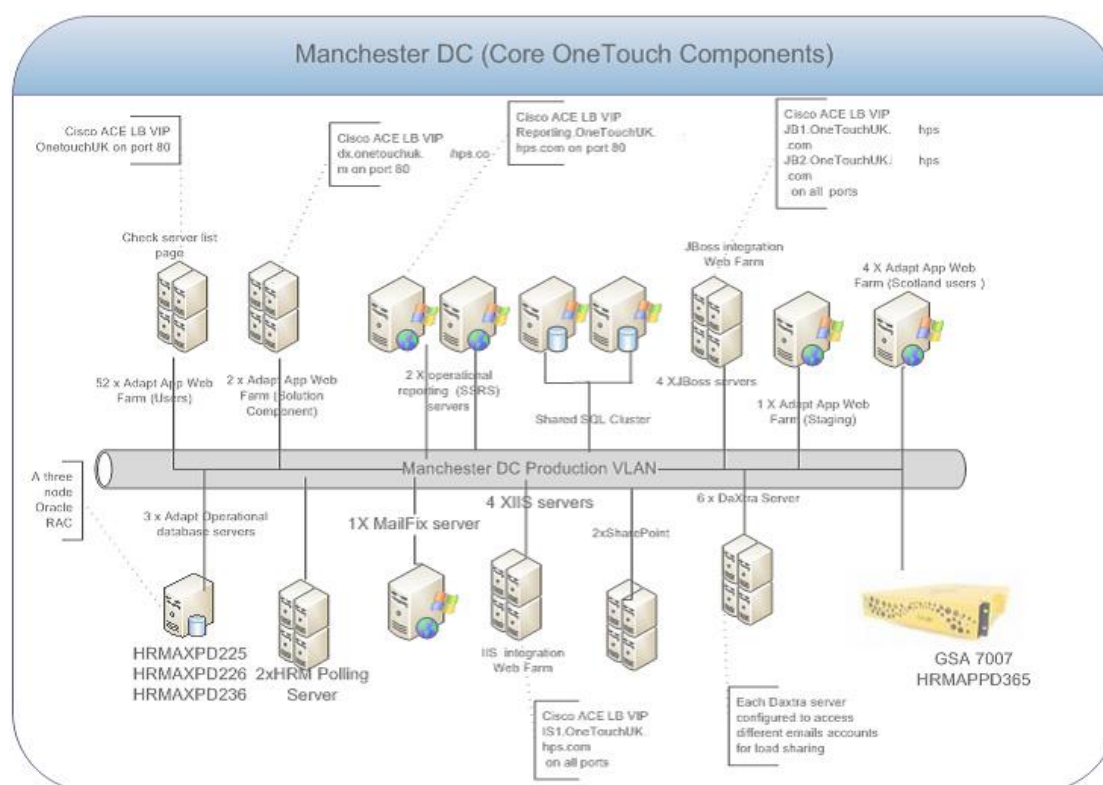
Specification of PG-OBS Managed Consultative Service

Hals have invested in PG-OBS an End-User experience Performance Management and Troubleshooting solution to support and improve the performance of key business critical applications as well as the networks they traverse.

This Business As Usual Proof of Concept has been designed to meet Hals's requirements and consequently IMS have implemented the following tools:

PG Enterprise Manager

- Web based management and weekly/monthly reporting module based in the Hals VM domain.

PG End-User Agents:

Nb: Sites increased from previous report

- Sites:	End-User agents	Sites:	End-User agents
Aberdeen	56	Plymouth	4
Edinburgh	256	Scarborough	4
Glasgow	172	Lucknow1&2	204
Moorgate	396	Chennai	360
Cheapside	0	Mumbai	96
Maidenhead	4	India Office5	256
Oxford	4	New Malden IT	56
Total	1.868		

PG Server Agents

- Sites:	End-User agents
Leeds (Server LAN)	6
Server LAN (10.190.23.0/24)	14
Server LAN (10.190.26.0/24)	27
Server LAN (10190.27.0/24)	8
Total	55

To include   1 x OneTouch web/application Servers:

x SAP Servers, x SQL Servers, x Exchange Servers, x File Servers, x AD Servers

9 x Citrix Servers, TBC x Various other Web & Application Servers

IT ScoreCard module

- An MCS deployment of the monthly IT ScoreCard reporting tool to collate and provide a holistic view of information monitored and reported by PG-OBS.
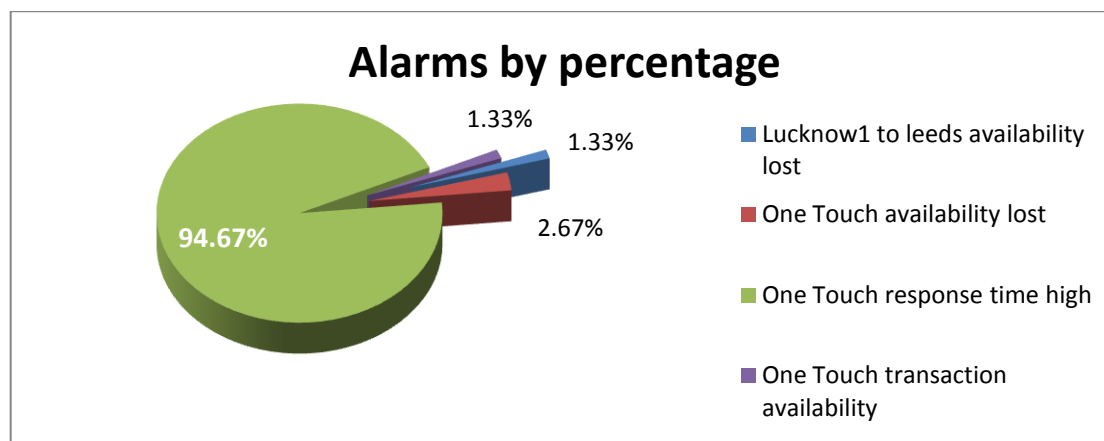
OneView module

- An optional software module for detailed database log-file interrogation, providing in-depth correlation, to enable resolution from root cause.

Findings

Network -

For the statistics available from the limited number of PG agents deployed and in consideration of some of our recommendations carried out, the network in the UK has appeared stable during the month of March. There have been a number of exceptions across the month with 75 alarms raised. With 98.66% related to the OneTouch Application slow response or loss of availability.

Alarms by percentage

1.33%   1.33%

94.67%   2.67%

- Lucknow1 to leeds availability lost
- One Touch availability lost
- One Touch response time high
- One Touch transaction availability

These alarms are reviewed and assessed as they are raised on a daily basis and where appropriate investigated. (NOTE: This does not include incidents raised for areas of the network where PG agents are not deployed)

The number of active agents continues to be lower than that originally recommended and the subsequent significant improvement in service to those end-users monitored compared to those end-users not monitored needs to be addressed, as the reported positive affect on morale and productivity should be offered to the entire estate.

OneTouch Application –

The majority of raised alarms this month were related to the OneTouch Application with the graphs of Month 14 for UK Offices and Indian Offices shown below highlighting regular peaks showing nightly slow response peaks most days; however these are out of normal working hours. The peaks during working hours indicate periods of service degradation for UK Office End Users on 9 days and further investigation of these peaks on the 8th, 14th, 15th, 20th, 27th, 28th March and 2nd, 5th April have been undertaken and reported in detailed in the Further Findings section below.

Graph 24.1 – Response Time of OneTouch Application – UK Offices
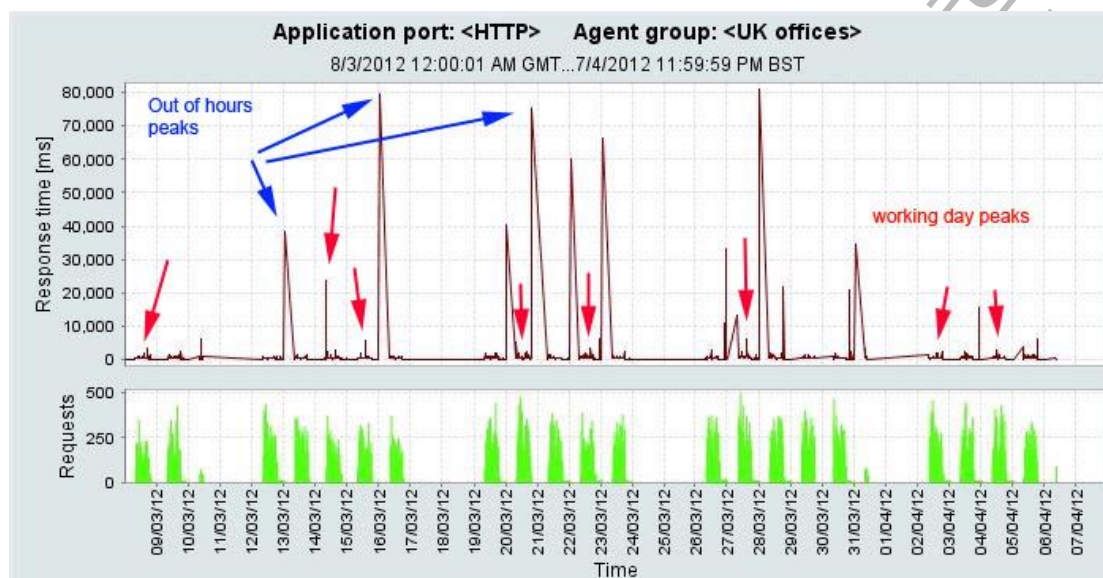
This graph shows a number of high peaks above 30,000ms highlighted in blue that occur outside of normal working hours. Although the peaks highlighted with red arrows are much smaller they show periods of slow response times during the working day. The peak over 20,000ms on the 14th March being the highest working day peak some of the red arrowed peaks suggest actual degradation to End User services during working hours and have prompted further investigation.

Graph 24.2 – Response Time of OneTouch Application – India Offices
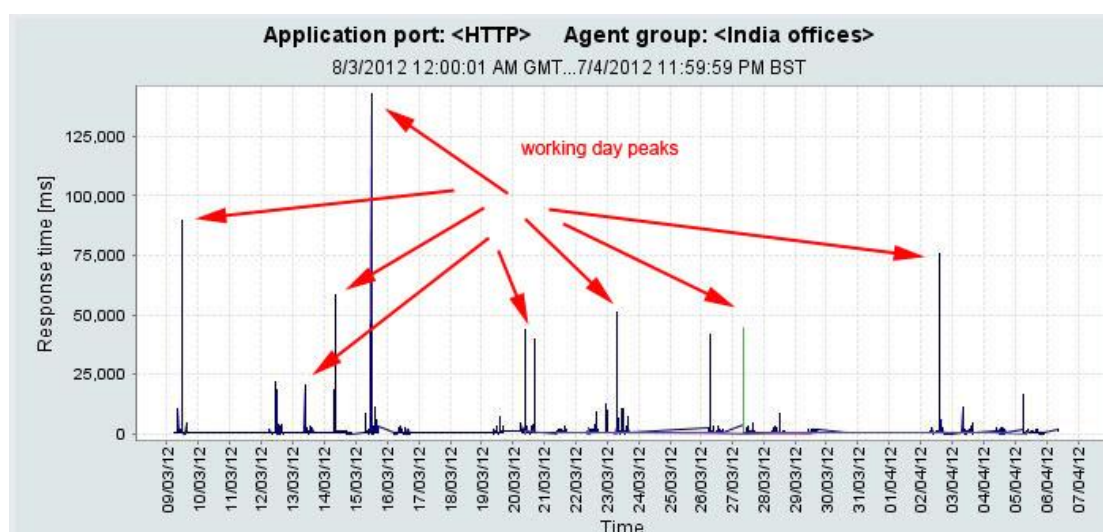
On this graph for End Users using the OneTouch application they experienced similar periods of slow response from the OneTouch Websites with some on corresponding days but others on different days to the UK Office End Users. Highlighted by red arrows are high peaks during working days, 11 peaks exceed 10,000ms or 10 second response times. As can be seen there are multiple peaks on 23rd March and this has been further investigated.

Network Alarms –

Only one network alarm has been raised during this period. The link between India Lucknow 1 and Leeds suffered a loss of availability on the 30th March at 09:52:00 for a short period, this probably had little impact upon the End Users.

Network – DNS

The performance of DNS across the Hals network has been raised before and has been regularly monitored. Below are two graphs showing the DNS response times from active agents in UK & India Offices with the known 64 DNS servers or reduced to the active DNS servers for closer analysis. The performance of DNS services has significantly changed from January 2012 and some comparisons have been included to highlight the differences.

Graph 24.3 – Response Times for all UK Office agents from DNS servers
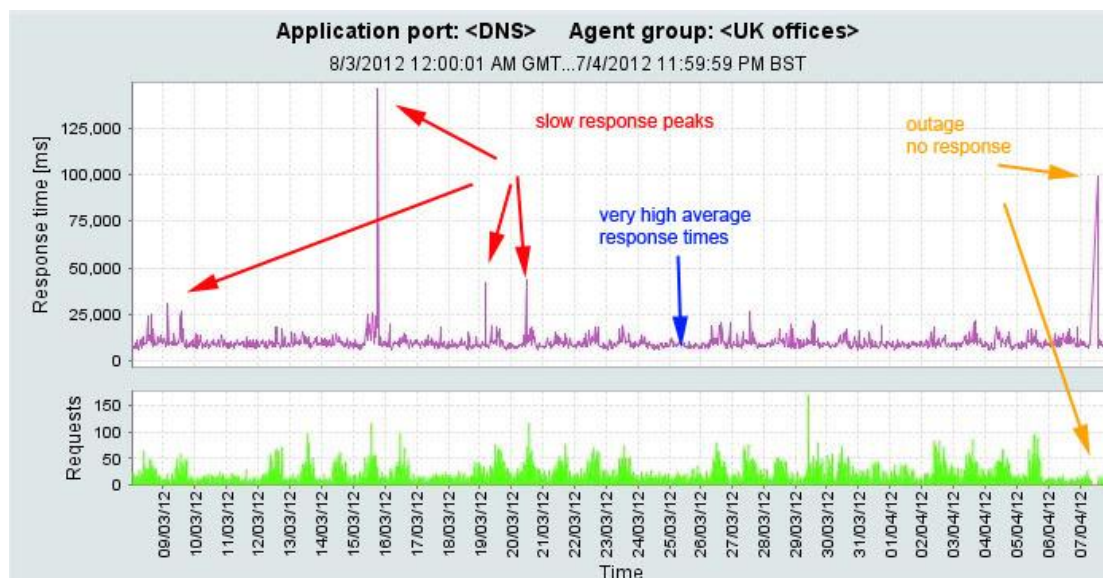
This graph clearly shows the average DNS response time in the UK has increased this month compared to previous reports. The response time statistics of DNS server to End User computers in UK Offices is shown below 24.4 and for comparison the statistics from Month 12 below as 22.3. The average response time has increased from 772.4ms to 9,957.7ms, the minimum response time from 18.6ms that was classed as excellent has now reached a very poor 5,733.4ms. The maximum figure of 146,255ms also speaks for itself as significantly slower than 8,734ms in January 2012. The red arrows highlight slow response peaks and the orange arrows highlight an outage on the 7th April with zero requests and a high response time peak.

Statistics 24.4 – Response Times for all UK Office agents from DNS servers

Statistics

Name	Max	Min	Avg	Sum	Samples
DNS	146,255	5,733.4	9,957.7	13,771,495.5	1383

Statistics 22.3 – Response Times for all UK Office agents from DNS servers Jan 2012

Statistics

Name	Max	Min	Avg	Sum	Samples
DNS	8,734	18.6	772.4	301,237.8	390

Graph 24.5 – Response Times for all Indian Office agents from four DNS servers
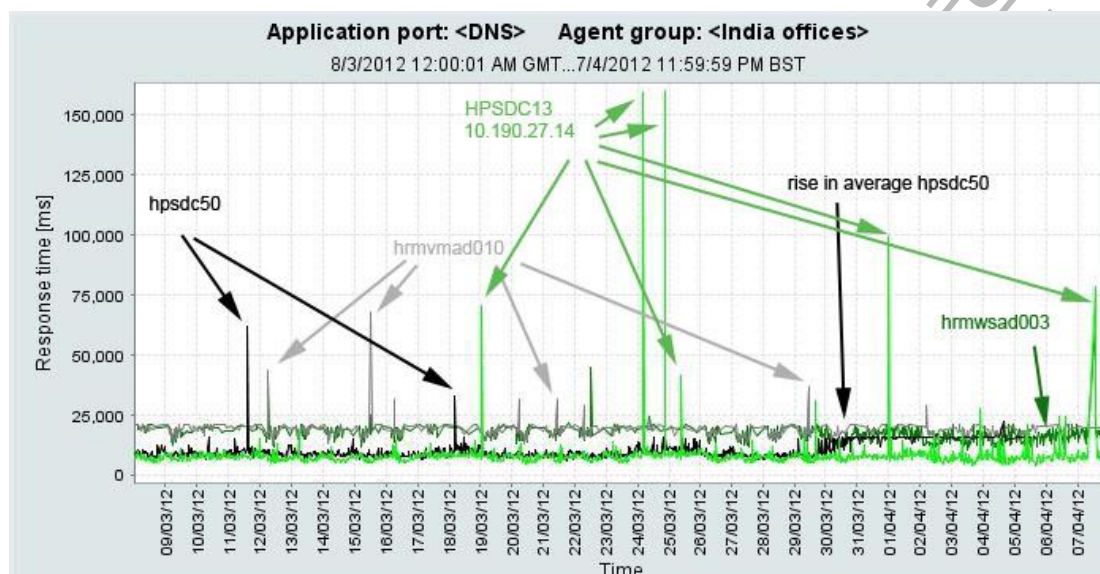
The initial analysis showed only four DNS servers being accessed by the monitored agents in Indian Offices hence the graph above concentrates on the DNS responses from these four servers. Although the impact in the UK relates to the same HRMWSAD003 server this does only show one high peak for Indian Users on the 22nd March. The average DNS response time is similar to the UK value at 8,896.8ms as shown in the statistics below. Other DNS servers HPSDC13, HPSDC13 & HRMVMAD010 exhibit slow response peaks and HPSDC50 a distinct rise in average response time on the 30th March. The average response time for HRMVMA010 and HRMWSAD003 is around 18,000ms and double that of the other two DNS servers as shown in the 24.7 statistics below.

Statistics 24.6 – Response Times for all Indian Office agents from DNS servers

Statistics

Name	Max	Min	Avg	Sum	Samples
DNS	103,906.1	5,479.2	8,896.8	12,313,119.5	1384

Statistics 24.7 – Response Times for all Indian Office agents from four DNS servers

Statistics

Name	Max	Min	Avg	Sum	Samples
10.190.27.14	160,035.8	3,913.3	8,302.2	11,465,326	1381
hpsdc50. hps.com	62,272.9	6,181.5	10,090.6	11,483,086.4	1138
hrmvmad010.emea. .loc	68,144.7	12,858.8	18,766.1	10,715,421	571
hrmwsad003.emea. .loc	63,313.4	10,931.4	17,277.6	14,115,835.2	817

Statistics 22.6 – Slow Response Times for UK agents from DNS servers Jan 2012

Statistics

Name	Max	Min	Avg	Sum	Samples
hpsdc04. hps.com	5,045	21.9	140.2	14,438.5	103
hpsdc31. hps.com	5,118	13.4	102.2	7,771	76
hrmwsad001. .loc	5,107.5	14.9	100.1	15,819.1	158
hrmwsad003.emea. .loc	21,640	113.4	2,451.2	1,250,121.1	510

A comparison of the DNS statistics from Month 12 report clearly shows the difference in DNS response time for the HRMWSAD003 server – the minimum has risen from 113.4ms to 10,931.4ms and average from 2,451.2ms to 17,277.6ms showing a significant degradation.

Database Servers –

As a result of the OneTouch response time peaks a review of the database servers response times discovered the following degradations in database server performances.

Graph 24.8 – Response Times for all agents from Database servers

Application port: <Oracle>   Agent group: All
8/3/2012 12:00:01 AM GMT...7/4/2012 11:59:59 PM BST
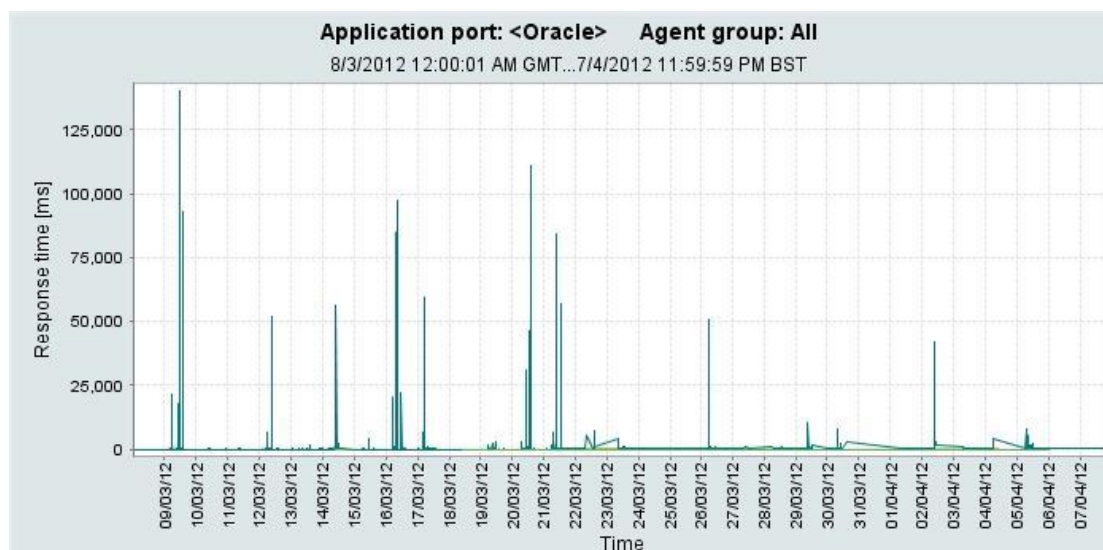
The graph highlights a number of working days during the period that experienced slow response times. To identify the responsible servers a split of the information was extracted and shown in the statistics below.   This confirms that server HRMAXPD225 is mainly responsible with a maximum peak of 140,403ms and due to the peaks the average response time over the month of 1,039ms. Refer to the further findings section for detailed comparison between OneTouch and Database response times.

Statistics 24.9 – Response Times for all agents from Database servers

Statistics

| Name	Max	Min	Avg	Sum	Samples
hrmaxpd225-vip.emea. .loc	1.64	1.1	1.46	4.37	3
hrmaxpd225.emea. .loc	140,403.5	0.602	1,039.5	1,849,290.9	1779
hrmaxpd226-vip.emea. .loc	0	0	0	0	0
hrmaxpd226.emea. .loc	2,331	0.653	5.74	9,639.1	1679
hrmaxpd236-vip.emea. .loc	0	0	0	0	0
hrmaxpd236.emea. .loc	43.3	6.31	26.6	132.8	5

Citrix Services –

A review of the Citrix services from historical data over the whole month is not possible due to disk space limitations, therefore it has been taken from three days within the period. The results continue to show a degree of latency however the data is now limited to monitoring only two Citrix servers with active agents. HRMWSPD551 is the only server responding to the End User monitored agents. The statistics below show ten network subnets actively using the HRMWSPD551 server and are listed in the order of highest latency.

Statistics 24.12 – Citrix latency by subnet to Citrix server HRMWSPD551

No.	Subnet	Citrix Latency (ms)
1	Net 10.72.101.0/24	1,124.3
2	Net 172.19.47.0/24	1,119.4
3	Net 10.92.161.0/24	856.5
4	Net 10.88.115.0/24	524.5
5	Net 10.220.3.0/24	187.5
6	India Chennai - 10.209.14.0/24	169.3
7	Net 10.114.123.0/24	141
8	Net 127.0.1.0/24	138.1
9	Server LAN (Leeds) - 10.190.13.0/24	28.9
10	Server LAN - 10.190.23.0/24	15.7

Graph 24.13 – Citrix latency by subnet to Citrix server HRMWSPD551
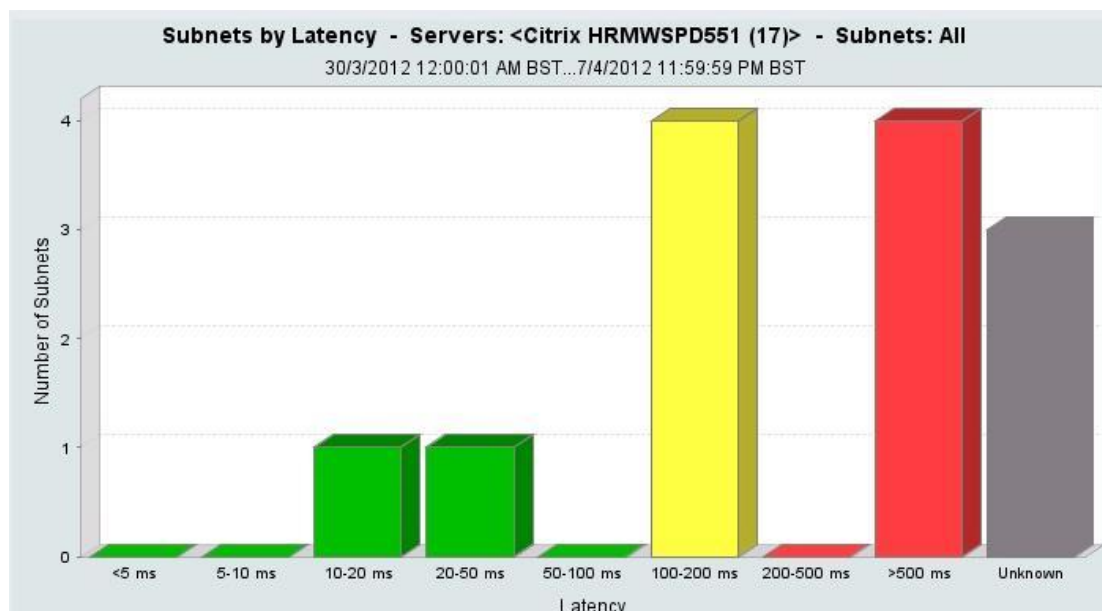
This graph highlights that only two subnets are performing within acceptable latency of 100ms these are the server LANs in Leeds and Manchester. The impact of Wide Area Network (WAN) access resulting in 100 – 200ms response times would again be within acceptable limited but latency above 500ms is unacceptable.

The statistics below show 9 sessions from two Indian sub-networks are within the WAN latency of 200ms

Statistics 24.14 – Maximum active sessions to Citrix server HRMWSPD551

No.	Subnet	Max. Active Sessions
	Top 5	
1	India Chennai - 10.209.14.0/24	8
2	India Office5 - 10.209.15.0/24	1

Further analysis of Login Times and average latency by workstation are listed in Statistics 24.15 below.

Statistics 24.15 – Worst 15 Citrix login times to Citrix server HRMWSPD551

#	Login Time (ms)	Start time	End time	Name	Domain	Server	Client IP
1	103453	4/4/2012 04:38:24 PM BST	4/4/2012 04:43:12 PM BST	hillm2	EMEA	HRMWSPD551	10.190.13.241
2	60265	4/4/2012 04:13:18 PM BST	4/4/2012 04:29:05 PM BST	hillm2	EMEA	HRMWSPD551	10.190.13.241
3	37640	5/4/2012 03:27:31 PM BST	5/4/2012 03:35:15 PM BST	hillm2	EMEA	HRMWSPD551	10.190.23.241
4	20781	5/4/2012 11:43:33 AM BST	5/4/2012 11:54:49 AM BST	kmoss	HPS	HRMWSPD551	10.190.13.241
5	18593	4/4/2012 12:45:21 PM BST	4/4/2012 12:51:21 PM BST	imbimbog	HPS	HRMWSPD551	10.190.13.241
6	16125	5/4/2012 01:43:09 PM BST	5/4/2012 02:40:01 PM BST	kmoss	HPS	HRMWSPD551	10.190.13.241
7	9078	5/4/2012 04:08:12 PM BST	5/4/2012 10:50:02 PM BST	kmoss	HPS	HRMWSPD551	10.190.13.241
8	8906	4/4/2012 10:54:03 AM BST	4/4/2012 07:00:23 PM BST	kmoss	HPS	HRMWSPD551	10.190.13.241
9	7078	4/4/2012 08:58:55 AM BST	4/4/2012 02:24:19 PM BST	tamneep	EMEA	HRMWSPD551	10.72.101.129
10	6562	3/4/2012 08:57:54 AM BST	3/4/2012 04:29:11 PM BST	kershawr	HPS	HRMWSPD551	10.114.123.246
11	6031	3/4/2012 04:32:08 PM BST	3/4/2012 06:38:38 PM BST	pooleyj	EMEA	HRMWSPD551	172.19.47.18
12	5953	3/4/2012 10:45:12 AM BST	3/4/2012 07:12:29 PM BST	kmoss	HPS	HRMWSPD551	10.190.13.241
13	5875	5/4/2012 10:08:41 AM BST	5/4/2012 10:41:04 AM BST	tamneep	EMEA	HRMWSPD551	10.72.101.77
14	5468	4/4/2012 02:54:21 PM BST	4/4/2012 03:46:25 PM BST	tamneep	EMEA	HRMWSPD551	10.72.101.248
15	3937	4/4/2012 08:22:30 AM BST	4/4/2012 01:51:01 PM BST	kumarpa	EMEA	HRMWSPD551	10.220.3.15

The top of the list shows a login time of nearly 2 minutes and the second of 1 minute compared to the 7 – 15 in the list of 4 – 5 seconds. Most are from the 10.190.13.241 network but we are not aware of this physical location for this report. There does not appear to be a pattern to the data other than the 8 longest login times is from the same sub-network.

Statistics 24.16 – Average latency of Citrix Users to Citrix server HRMWSPD551

#	Avg. Latency (ms)	Start time	End time	Name	Domain	Server	Client IP
1	3765	5/4/2012 10:08:41 AM BST	5/4/2012 10:41:04 AM BST	tamneep	EMEA	HRMWSPD551	10.72.101.77
2	3229	4/4/2012 08:58:55 AM BST	4/4/2012 02:24:19 PM BST	tamneep	EMEA	HRMWSPD551	10.72.101.129
3	1119	3/4/2012 04:32:08 PM BST	3/4/2012 06:38:38 PM BST	pooleyj	EMEA	HRMWSPD551	172.19.47.18
4	856	4/4/2012 12:35:53 PM BST	4/4/2012 04:58:38 PM BST	kershawr	HPS	HRMWSPD551	10.92.161.104
5	594	4/4/2012 02:54:21 PM BST	4/4/2012 03:46:25 PM BST	tamneep	EMEA	HRMWSPD551	10.72.101.248
6	524	4/4/2012 08:11:14 AM BST	4/4/2012 11:39:42 AM BST	kershawr	HPS	HRMWSPD551	10.88.115.123
7	340	4/4/2012 08:28:58 AM BST	4/4/2012 11:51:48 AM BST	sharmapa	HPS	HRMWSPD551	10.209.14.95
8	258	4/4/2012 08:42:55 AM BST	4/4/2012 07:02:43 PM BST	aggarwalro	HPS	HRMWSPD551	10.209.14.39
9	215	4/4/2012 08:22:30 AM BST	4/4/2012 01:51:01 PM BST	kumarpa	EMEA	HRMWSPD551	10.220.3.15
10	210	5/4/2012 04:40:06 PM BST	5/4/2012 05:29:54 PM BST	pooleyj	EMEA	HRMWSPD551	10.72.101.183

Considering the average latency of user connections the highest two are from the same sub-network 10.72.101 which correlates with the list of sub-nets as the slowest network.

OneTouch Application – Response Time

Alarms and the peaks on the OneTouch application response times to UK Office & Indian Office End Users are under further investigation along with a review of Database Server response times to establish any correlation and therefore cause.

The peaks on the 14th, 27th March & 2nd April 2012 have been selected for further investigation with the analysis detailed below.

14th March 2012

Graph & Statistics 24.17 – OneTouch Response Time 14th March 2012
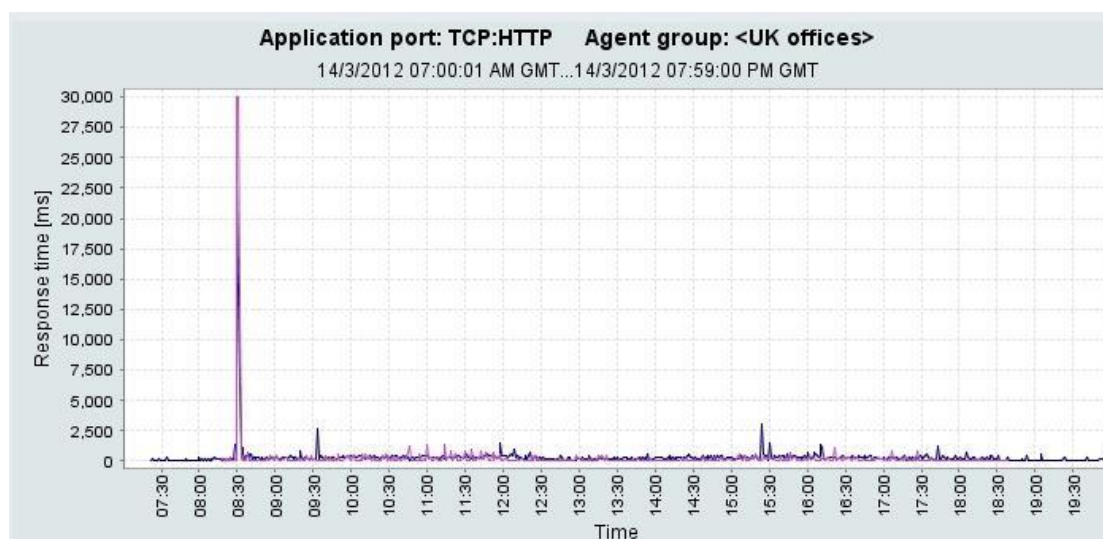
Statistics

Name		Max	Min	Avg	Sum	Samples
hrmvmpd420.emea.	.loc	0	0	0	0	0
hrmvmpd568.emea.	.loc	0	0	0	0	0
hrmvmpd570.emea.	.loc	0	0	0	0	0
hrmvmpd571.emea.	.loc	0	0	0	0	0
hrmvmpd744.emea.	.loc	0	0	0	0	0
hrmvmpd747.emea.	.loc	30,030.3	18.3	274.2	170,851.4	623
hrmvmpd902.emea.	.loc	0	0	0	0	0
hrmvmpd907.emea.	.loc	0	0	0	0	0
hrmvmpd917.emea.	.loc	0	0	0	0	0
hrmvmpd922.emea.	.loc	0	0	0	0	0
hrmvmpd925.emea.	.loc	0	0	0	0	0
hrmvmpd926.emea.	.loc	0	0	0	0	0
hrmvmpd928.emea.	.loc	0	0	0	0	0
hrmvmpd934.emea.	.loc	0	0	0	0	0
onetouchuk.emea.	.loc	22,902.5	23.4	327.5	247,909.4	757

The statistics show that only two of the fifteen OneTouch servers provide results from the installed and active agents in the UK Offices. A review of the database servers during the same period on the 14th March below (Graph 24.18) shows a clear correlation with the peak at 08:30 of 12,136ms and 13,812ms for two Database servers matching the impacted OneTouch servers onetouchuk.emea.hals.loc and hrmvmpd747.emea.hals.loc.

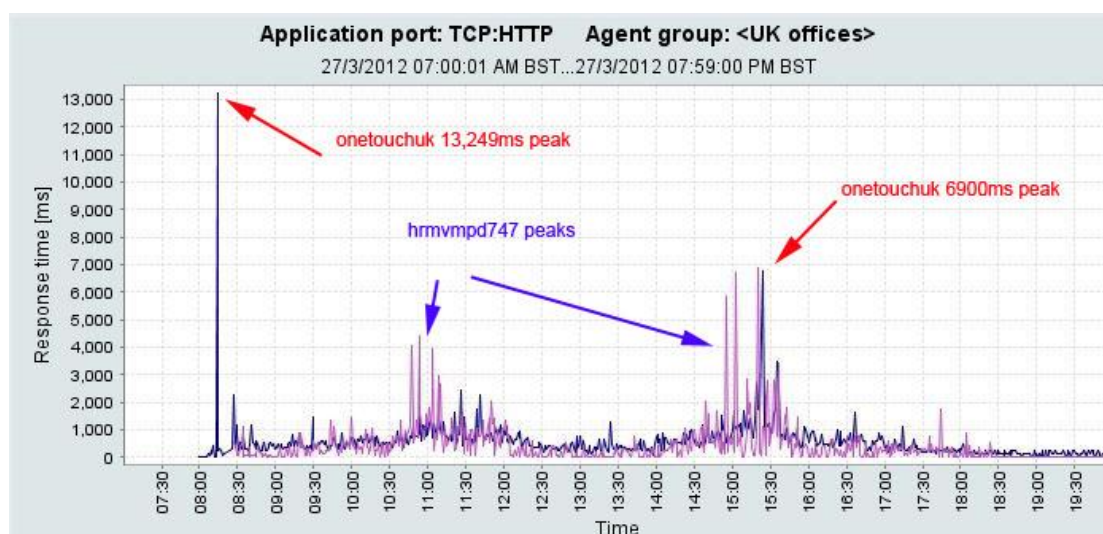**Graph & Statistics 24.18 – Database Server (Oracle) Response Time 14th March 2012**

Application port: All   Agent group: onetouch
14/3/2012 07:00:01 AM GMT...14/3/2012 07:59:00 PM GMT

Statistics

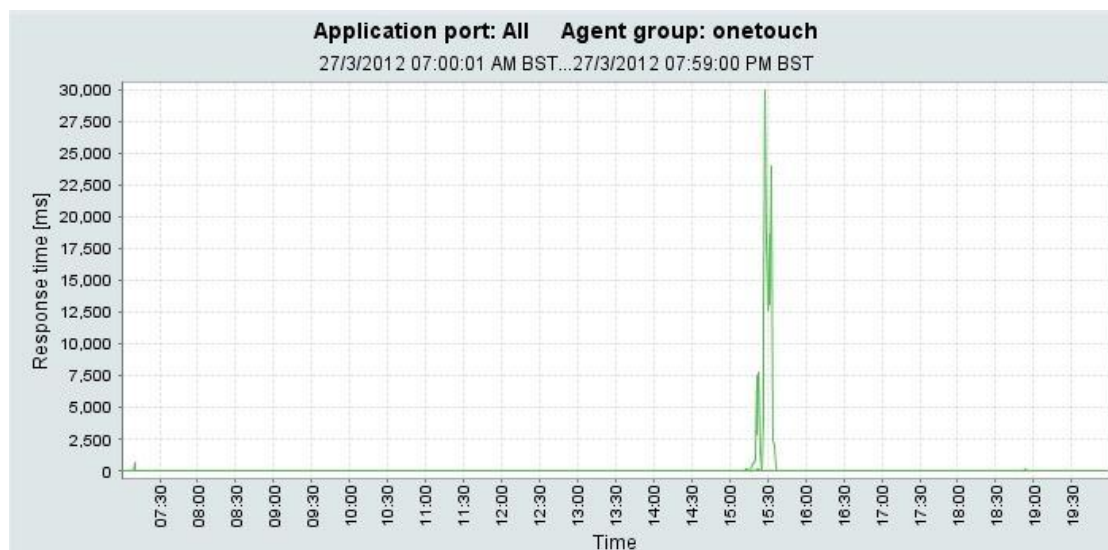| Name	Max	Min	Avg	Sum	Samples
hrmaxpd225-vip.emea. .loc	7,331.3	1.04	15.9	12,396	778
hrmaxpd225.emea. .loc	0	0	0	0	0
hrmaxpd226-vip.emea. .loc	12,156.6	0.886	34.2	26,625.1	778
hrmaxpd226.emea. .loc	0	0	0	0	0
hrmaxpd236-vip.emea. .loc	13,812.5	0.844	24.7	19,209.3	778
hrmaxpd236.emea. .loc	0	0	0	0	0

27th March 2012

The following two graphs show high response time peaks at 08:20 & 13:20 for OneTouch server OneTouchuk and periods of raised response times around 11am and from 14:50 to 15:30 for hrmvmpd747.   A review of the Graph of database response times between database servers and OneTouch servers (24:20) only shows corresponding peaks around 15:30 on the 27th March for database server HRMAXPD236-vip.   The cause of the other peaks for OneTouch servers is therefore not related to the database servers and a request for further investigation of these peaks is awaiting approval for additional agent rollout.

Graph & Statistics 24.19 – Response Time 27th March 2012 OneTouch UK Offices

Application port: TCP:HTTP   Agent group: <UK offices>
27/3/2012 07:00:01 AM BST...27/3/2012 07:59:00 PM BST

onetouchuk 13,249ms peak

onetouchuk 6900ms peak

hrmvmpd747 peaks

Statistics

Name		Max	Min	Avg	Sum	Samples
hrmvmpd420.emea.	.loc	0	0	0	0	0
hrmvmpd568.emea.	.loc	0	0	0	0	0
hrmvmpd570.emea.	.loc	0	0	0	0	0
hrmvmpd571.emea.	.loc	0	0	0	0	0
hrmvmpd744.emea.	.loc	0	0	0	0	0
hrmvmpd747.emea.	.loc	6,912.9	23.3	417.2	288,718.6	692
hrmvmpd902.emea.	.loc	0	0	0	0	0
hrmvmpd907.emea.	.loc	0	0	0	0	0
hrmvmpd917.emea.	.loc	0	0	0	0	0
hrmvmpd922.emea.	.loc	0	0	0	0	0
hrmvmpd925.emea.	.loc	0	0	0	0	0
hrmvmpd926.emea.	.loc	0	0	0	0	0
hrmvmpd928.emea.	.loc	0	0	0	0	0
hrmvmpd934.emea.	.loc	0	0	0	0	0
onetouchuk.emea.	.loc	13,249	20.5	575.2	407,222.9	708

**Graph & Statistics 24.20 –Response Time 27th March 2012 Database Servers**

Statistics

Name		Max	Min	Avg	Sum	Samples
hrmaxpd225-vip.emea.	.loc	627.7	1.03	15.7	12,171.1	776
hrmaxpd225.emea.	.loc	0	0	0	0	0
hrmaxpd226-vip.emea.	.loc	155.3	0.93	4.55	3,535.9	777
hrmaxpd226.emea.	.loc	0	0	0	0	0
hrmaxpd236-vip.emea.	.loc	29,998.1	0.877	208	161,606.1	777
hrmaxpd236.emea.	.loc	0	0	0	0	0

2nd April 2012

Graph & Statistics 24.21 – Response Time 2nd April 2012 OneTouch UK Offices
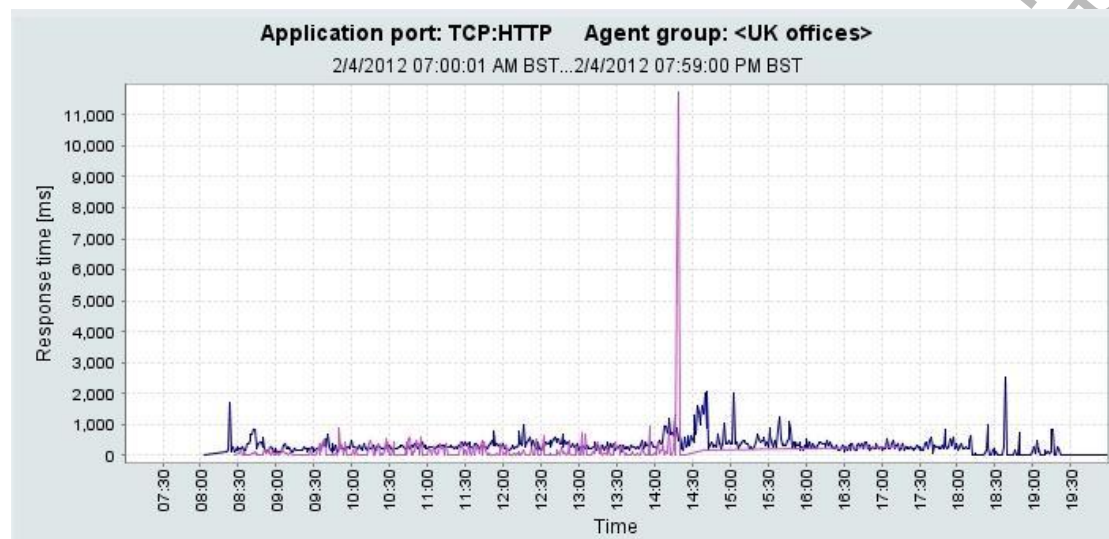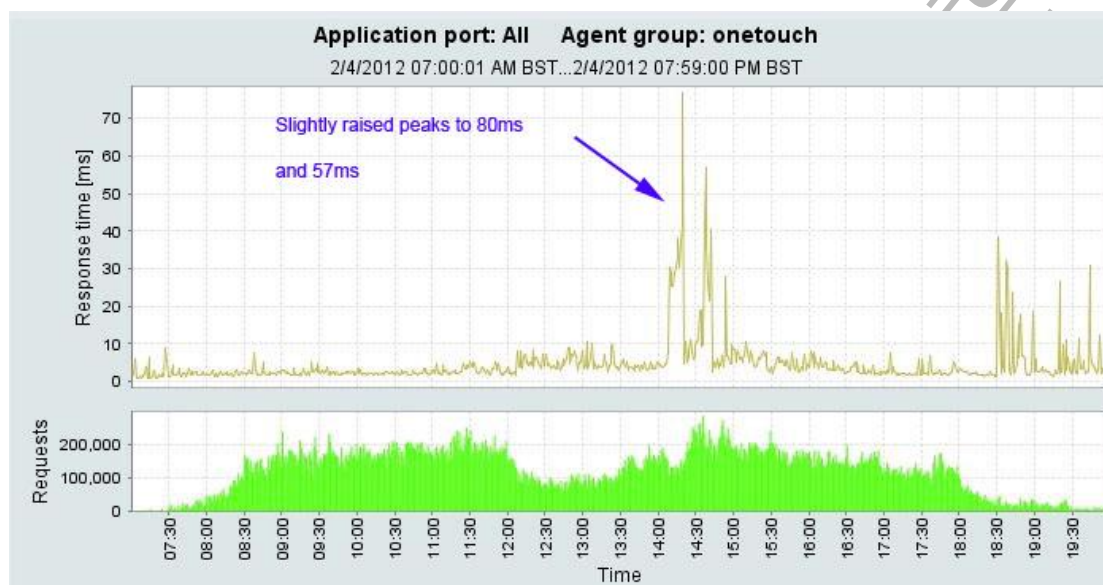

Statistics

Name	Max	Min	Avg	Sum	Samples
hrmvmpd420.emea. .loc	0	0	0	0	0
hrmvmpd568.emea. .loc	0	0	0	0	0
hrmvmpd570.emea. .loc	0	0	0	0	0
hrmvmpd571.emea. .loc	0	0	0	0	0
hrmvmpd744.emea. .loc	0	0	0	0	0
hrmvmpd747.emea. .loc	11,745.4	21.4	160.6	57,005.7	355
hrmvmpd902.emea. .loc	0	0	0	0	0
hrmvmpd907.emea. .loc	0	0	0	0	0
hrmvmpd917.emea. .loc	0	0	0	0	0
hrmvmpd922.emea. .loc	0	0	0	0	0
hrmvmpd925.emea. .loc	0	0	0	0	0
hrmvmpd926.emea. .loc	0	0	0	0	0
hrmvmpd928.emea. .loc	0	0	0	0	0
hrmvmpd934.emea. .loc	0	0	0	0	0
onetouchuk.emea. .loc	2,506.8	23.3	319.7	223,442.8	699

The graph and statistics show two OneTouch servers creating the peaks the red plot showing HRMVMPD747 and the blue plot ONETOUCHUK. The high peak at 14:15 relates to HRMVMPD747 and review of the database server response time in (24:22) below shows a corresponding peak at the same time. The second database peak at 14:35 corresponds to the blue plot peak on the ONETOUCHUK graph above, showing that both OneTouch servers were impacted by the slow response times from the Oracle database servers.

Graph & Statistics 24.22 – Database Server Response Time to OneTouch 2nd April 2012


This graph shows slightly raised response times for OneTouch servers betwwen 14:00 – 15:00 of under 80ms, however when analysing individual database server response times (see statistics below) this shows peaks of between 7,000ms to 13,812ms – the average is still low signifying the peaks occurred for a very short period of time. The graph above reports agent measurement every 180 seconds and therefore the maximum response time was not recorded within the graph, but the statistical information recorded the peaks.

Statistics

Name	Max	Min	Avg	Sum	Samples
hrmaxpd225-vip.emea. .loc	7,331.3	1.04	15.9	12,396	778
hrmaxpd225.emea. .loc	0	0	0	0	0
hrmaxpd226-vip.emea. .loc	12,156.6	0.886	34.2	26,625.1	778
hrmaxpd226.emea. .loc	0	0	0	0	0
hrmaxpd236-vip.emea. .loc	13,812.5	0.844	24.7	19,209.3	778
hrmaxpd236.emea. .loc	0	0	0	0	0

<u>**Below is a review of the OneTouch services to Indian Offices**</u>

**Graph & Statistics 24.23 – Response Time 15th March 2012 OneTouch Indian Offices**
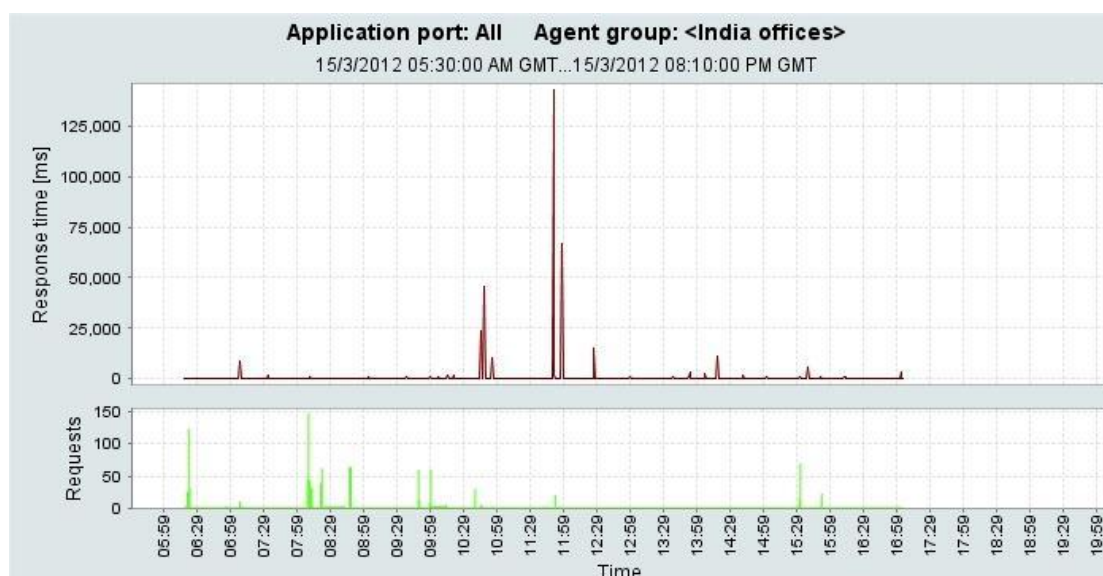
Statistics

Name	Max	Min	Avg	Sum	Samples
OneTouch	143,005	164.8	742.1	480,122.1	647

Further investigation confirmed that the Indian Office impacted was in Chennai four times with peaks over 20,000ms and splitting the OneTouch servers shows this offices monitored agents utilise the ONETOUCHUK server. The graph and statistics below of database response times on the 15th March from OneTouch servers shows a corresponding peak of 109ms, this does not appear to be a large response time compared to the 143,005ms peak on the OneTouch server but a small rise in database response time can have a significant impact on application servers and impact upon End User performance.

Graph & Statistics 24.24 – Database Server Response to OneTouch 15th March 2012

Statistics

Name	Max	Min	Avg	Sum	Samples
Database Servers	109.6	0.804	3.97	3,496.2	880
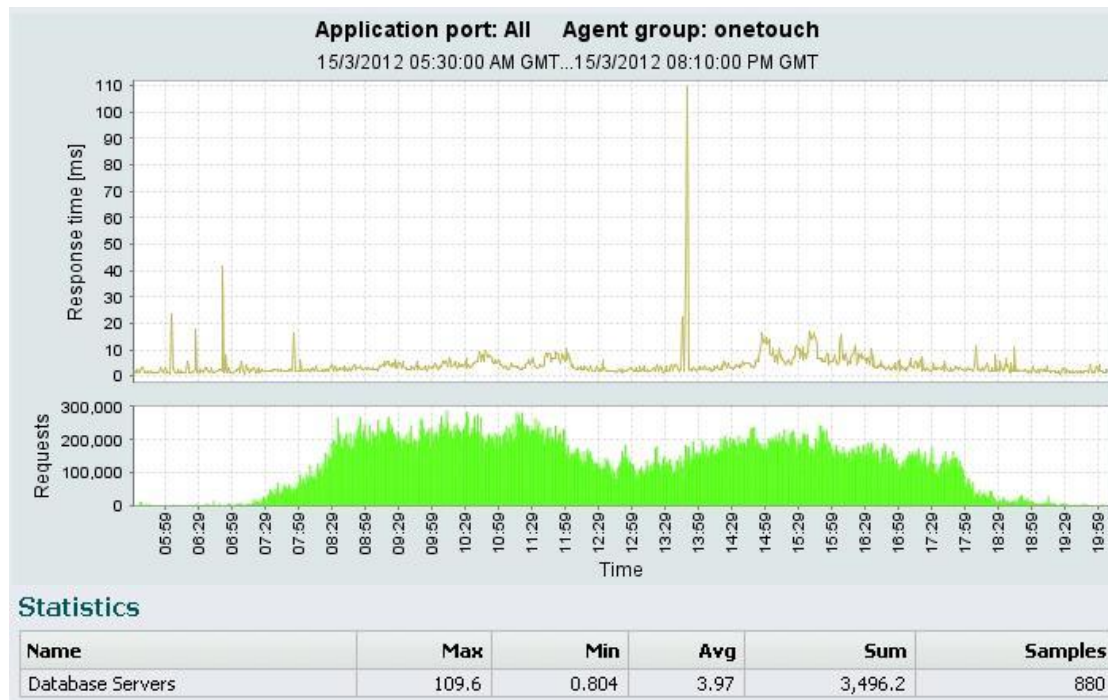
Conclusion

Infrastructure & Application Information -

Network –

The part of the network we are able to monitor with the installed PG agents did not experience any major outages over the month.

Significant DNS Degradation -

The review of the DNS server response times shows a significant degradation between the results in January 2012 to March 2012 and as the analysis of Server hrmwsad003.emea.hals.loc shows the DNS service provided by this server is a major cause of the increase in DNS response times. The conclusion this month repeats the previous recommendation that server hrmwsad003.emea.hals.loc needs urgent review of why there is such a slow DNS service from this server to ascertain and correct and DNS settings.

Application (OneTouch) –

The OneTouch application web monitoring has highlighted two separate causes of alarms; one during out of work hours where the response time around Midnight most days peaks for a short one – five minute period and the second in work hours with a number of five to 20 minute periods of significant degradation / impact to End User performance / response times on a range of dates across the period (this is a similar to the slow response times reported in previous reports).

Further investigation shows in most cases a correlation between raised response times for end users from the OneTouch service to raised database response times. The database response times of 11,000-14,000ms creates 30,000ms OneTouch response times. Even a relatively small rise in database response times (Graph 24.22) creates a huge rise in the correlating OneTouch response times (Graph 24.21) demonstrated in the Further Findings section The impact on UK and Indian users confirms this (Graph24.23).

Due to only two out of fifteen OneTouch servers and a selective number of deployed end user agents providing results it is not possible to analyse if the observed degradation is experienced by all End Users of the OneTouch application service, this is now under management review to deploy further agents

Database Servers –

Analysis has shown that corresponding Database response time issues of 1 – 15 minute low to very high response times on the 9th, 12th, 14th, 16th, 17th, 20th, 21st, 27th, March and 2nd April contributing to the OneTouch service response time issues; however there was no clear correspondence during the early part of the 27th March; a rise in Database response time was observed in the afternoon but not in the morning.   The highest peaks reached over 130,000ms that is 130 seconds or over 2 minutes compared to the typical average of 10ms response times.

Citrix Servers –

A review of citrix servers was carried out which highlighted a loss of active agents on all but two citrix servers and only one of these servers HRMWSPD551 is servicing the active agents on end user workstations. Due to the limited disk space available for results there was only a limited range of results available for analysis.

The results show a range of response times from good (under 100ms) to poor (over 500ms) with a majority in the poor response range. The report shows the response times across a range of network subnets, the worst response times come from 10.190.13.241. The actual physical location is not known.

Final Recommendations

Infrastructure & Application Information –

With the selective number of computers in Hals being actively monitored the general activity within the infrastructure has changed little from the previous monthly report. There have been no Network alarms raised this month, all the alarms raised have been for response time issues with the OneTouch application and short Database Server response times increases or short outages.

Network –

As detailed within this report there have been no reported network outages from the monitoring agents in this particular month; however there have been issues with DNS service response times which have been discovered during analysis.

Significant DNS Degradation -

The DNS issues highlighted for UK & India Offices is having a serious impact upon all End Users that utilise the hrmwsad003.emea.hals.loc and therefore requires urgent further investigation.

Detailed analysis of HRMWSAD003 was hampered by the limited disk space made available to the current PG Enterprise Server which has necessitated a limitation on the volume of information retained for analysis, however, after this was addressed we were able to analyse further and determine several configuration issues within this particular server as the root cause. These reconfigurations are being applied and the DNS will be re-baselined to confirm significant improvement.

Database Servers & OneTouch Service –

The OneTouch service continues to exhibit degradation at certain times on a growing number of days within the reporting period compared to previous months. Although there does not appear to be a concise regular pattern, in most cases there is a corresponding degradation in Database Server response times with application performance and in turn End-User experience.

The impact appears in more cases than in previous reports to be linked to the provision of information from certain Database Servers. We have recommended a review of the reported servers to be undertaken to establish the cause and the current findings have shown a significant issue with Database tables as well as disk IO performance; these are now being addressed and the initial baseline re-trace has confirmed significant increased performance.

Citrix Servers –

As the conclusions show from the limited range of data collected from only one Citrix server there is a degree of degradation, particularly on network subnet 10.190.13.241 that is now under investigation to improve performance to End Users in this part of the organisation.

Further agents are now being rolled out to other Citrix servers in order to confirm if these observations are symptomatic of the whole remote Citrix service across the company.

We will then retrace and compare baselines across the enterprise to determine the point of root cause.