



Proof of Concept Test Results

Client: AdvancedMD

Solution: Web Application Accelerator (WAA)

Date: 30 Mar. 09



*The purpose of this document is to present performance information on the **AdvancedMD** application as measured by 3rd party agents from globally dispersed areas around the world. The intention is to provide insight into the incremental performance gained when delivering content through the Akamai Web Acceleration Services.*

Executive Summary

By enabling Akamai's Web Acceleration service, Akamai was able to demonstrate:

150% improvement in the delivery of a multi-page transaction in the US.

350% improvement in the delivery of a multi-page transaction Globally.

Performance	Origin (sec)	Akamai (sec)	Avg Improvement (%)
Global	96	21	350%
USA	40	16	150%

AdvancedMD Goals/Requirements

Evaluate Akamai services to determine the level of performance improvement that can be made in the Internet delivery portion of customer web site.

Improve user experience through improved performance.

Provide a more consistent user experience regardless of geographic location.

Improve performance for end users in emerging markets such as China.

Mercury (HP Software as a Service) Overview

HP Software as a Service for HP Performance Center makes it easier and faster for to move to a Performance Center of Excellence. This managed service helps improve application performance by leveraging a centralized application, proven best practices and a team of service professionals. It offers the flexibility to allow HP to take an entire testing project or host applications and let us perform the testing ourself.

This document contains the results of a set of Mercury Transaction Tests that have been run to compare the potential performance benefits of using Akamai Web Acceleration Services versus the current centralized delivery model.

Testing Methodology

The **WAA** features enabled for the Akamai configuration included the following:

- SureRoute for Performance (Optimized Path Selection)
- Prefetching (reducing round-trip response delays on non-cacheable content)
- TCP Optimizations (reducing slow-start and recovery delays inherent with TCP)
- Compression (dynamically compressing content between edge regions, and to clients)
- Persistent Connections (reusing TCP connections for sending multiple requests to origin)
- Tiered Distribution (enabling intermediate parent regions for channelling all origin requests)

From **March 27 – March 30**, a set of Mercury Transaction agent tests were used to evaluate the performance improvements of delivering the AdvancedMD application over the Akamai network as compared to the AdvancedMD data centre(s).

Transaction tests better approximate an end user's interaction with the application than single page tests. Therefore, transaction testing service was used in this Proof of Concept. Mercury's transaction test agents are globally distributed and use standard IE6 browsers, which are capable of rendering Javascript and Flash.

The transaction test used consisted of the following steps:

1. Click on the Patient icon (first icon in the toolbar) to open the Patient Information screen
2. Enter 'A' (no quotes) into the Patient Name field and click the ellipsis button to find a patient
3. Select the first patient in the list and click OK
4. Verify that the patient record is populated on the screen

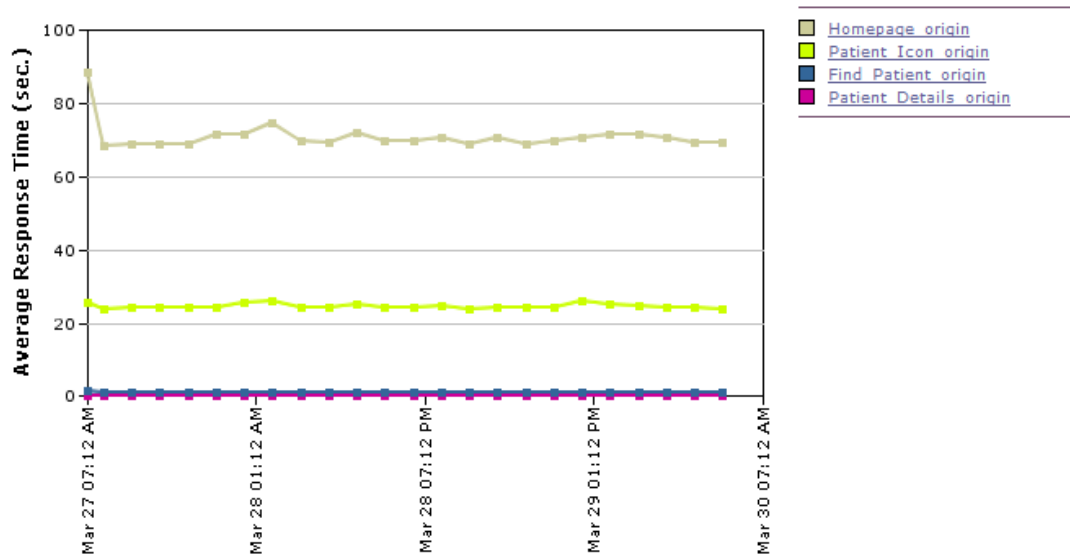
Two tests were run in parallel for the "transaction" described above. The first test was intended to baseline the current performance on the transaction (without using Akamai services). In this case, the test agents sent requests directly to AdvancedMD data centre. The second test was intended to show the performance improvements using Akamai's WAA services. Therefore, in this case, the test agents sent requests to Akamai servers using a unique hostname created by AdvancedMD for this purpose, accessing the identical AdvancedMD Web application.

Testing Results

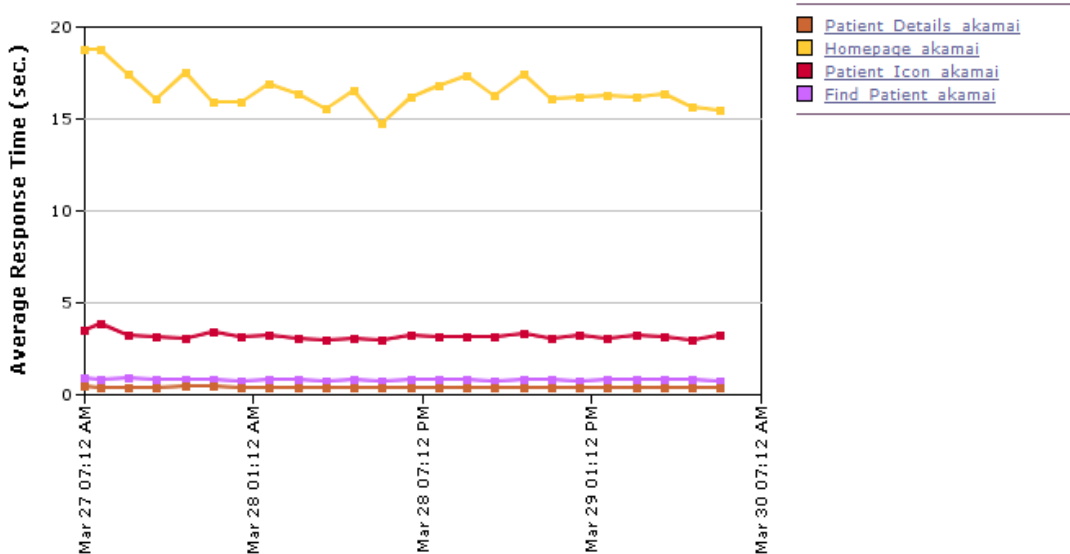
The graphs below show consistent performance improvements during the test time measured from all Mercury agents globally. The graphs take the average performance across the agents used to measure AdvancedMD application at hourly intervals.

Overall Transaction Performance (Global)

The graph below depicts performance over time (**Origin**) for each individual step.



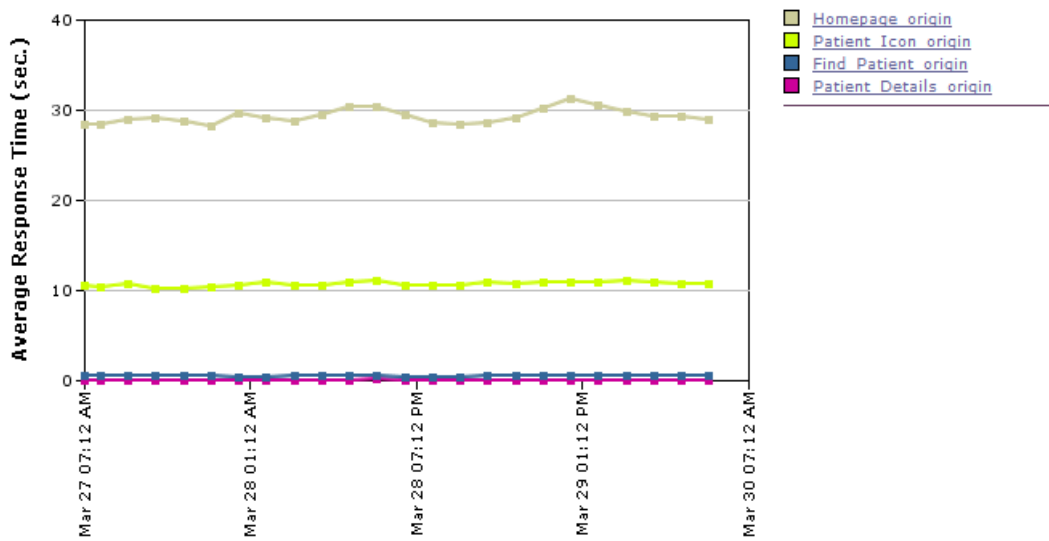
The graph below depicts performance over time (**Akamai**) for each individual step.



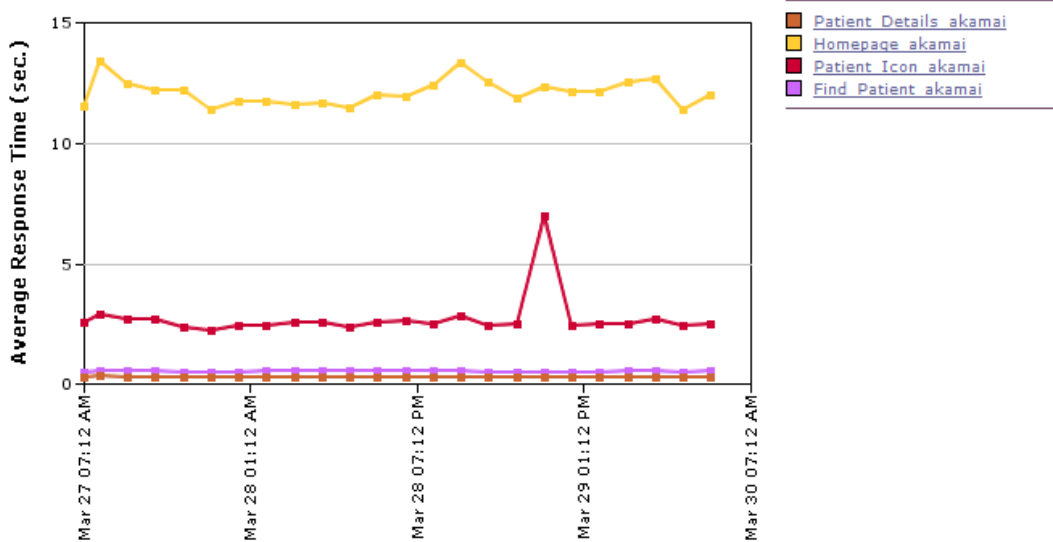
Overall Transaction Performance in region critical to customer (North America)

The graph below depicts performance over time.

Origin



Akamai



Observations

Testing showed that significant performance improvements can be made using the Akamai **WAA** technologies. Using AdvancedMD's existing delivery method the average transaction completion time globally was circa **96 s Globally and 40 s in the US**. The average transaction time using Akamai's web acceleration services was circa **20 s Globally and 16 s in the US**. This equates to Akamai delivering on average **ALL** types of content, *cached and non-cached* **1.6 times faster than the original delivery method**.

Testing Services are NOT the Real World

In a test environment, a 1hr TTL could produce a 0% cache hit rate. That same (B2B) site in the real world might see a 80-90% CHR.

Permanent connection's are rarely in effect during tests, but this is not the case in real world.

1-2 test agents per city for testing. Many users on diverse networks in the real world.

Origin DNS TTLs can have a significant impact with only 1 request per city per hour.

Summary

Using the Akamai platform to deliver content on behalf of AdvancedMD, significantly delivers a higher level of performance to the end-user. This is especially noticeable in Asia, however significant improvements have also been noted in other geographic locations.

Caching of content has provided a significant level of performance improvement, however the acceleration of content between end-user and origin has also delivered a **significantly** improved user experience. Akamai believes that should the configuration be put into a live state, performance would improve even more due to increased activity across the site.