Akamai EdgeSuite

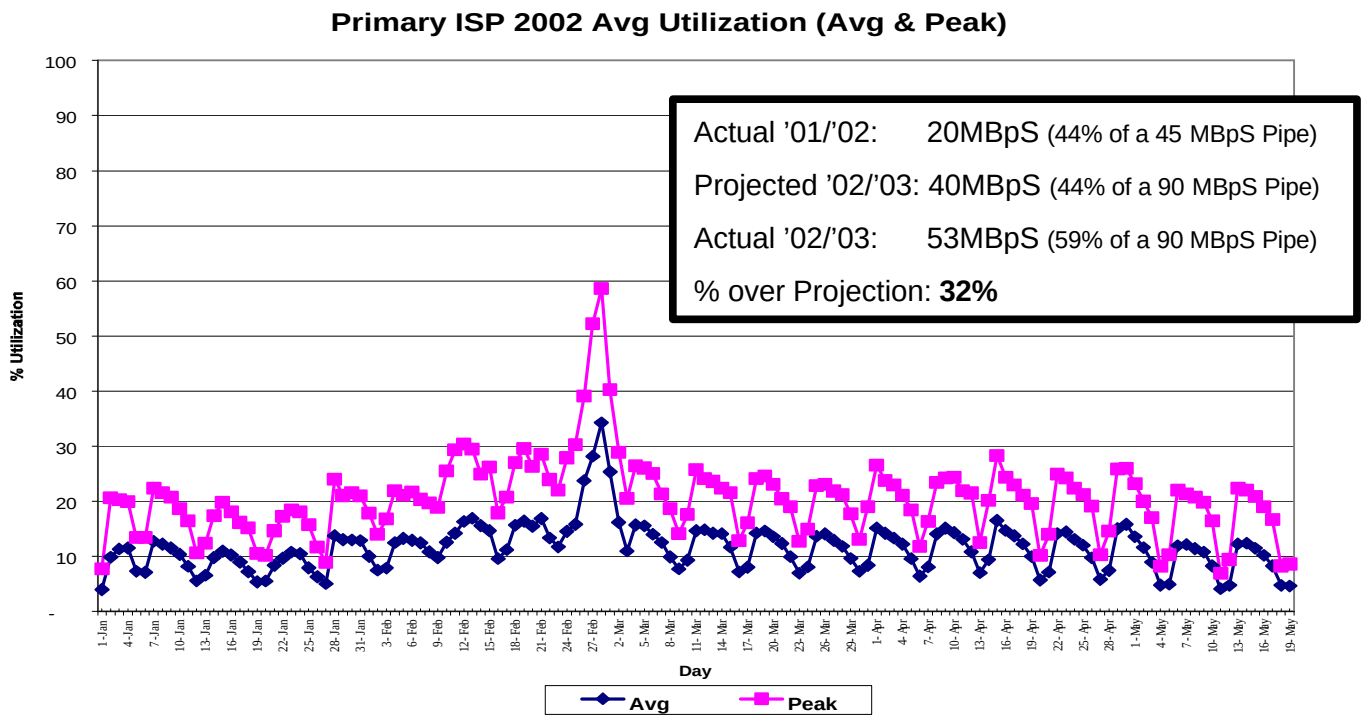
Summary

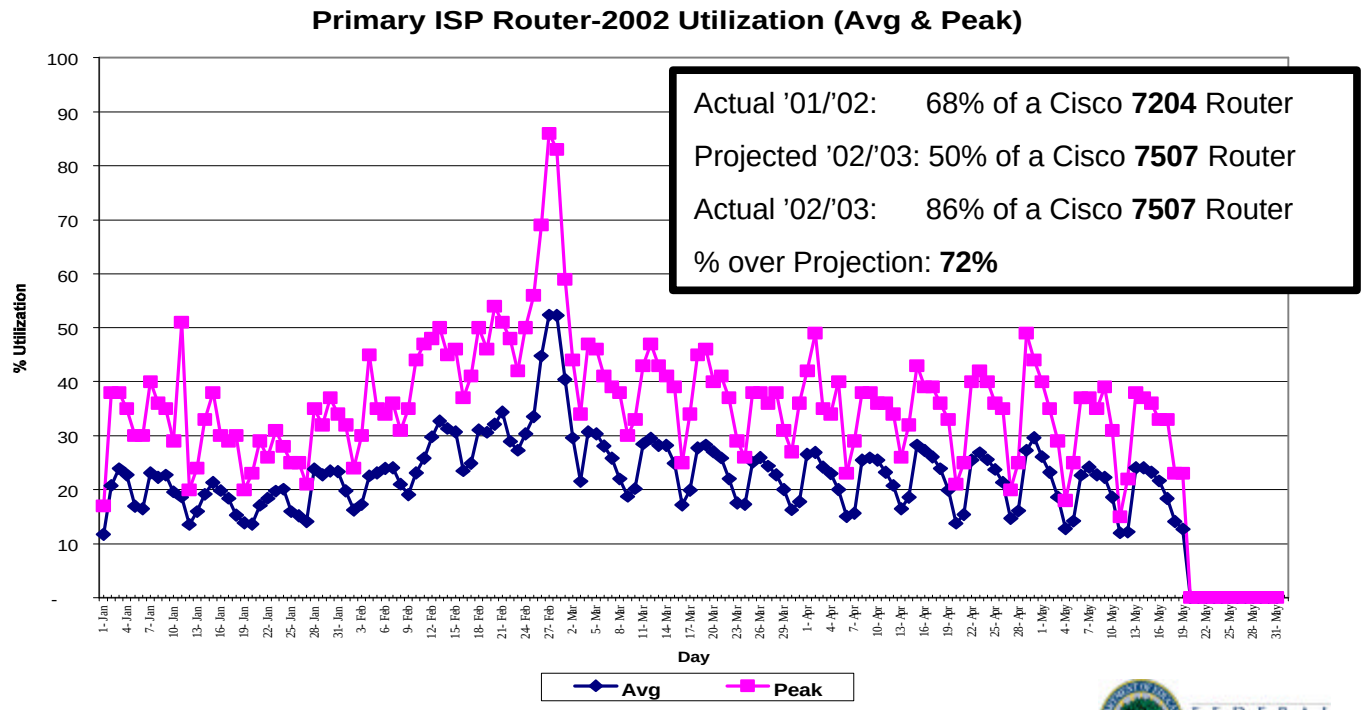
08/21/2002

Agenda

- **Historical Context**
- **Functional Overview**
- **Implementation Timeline**
- **Customer Service Improvements**
- **Infrastructure Improvements**

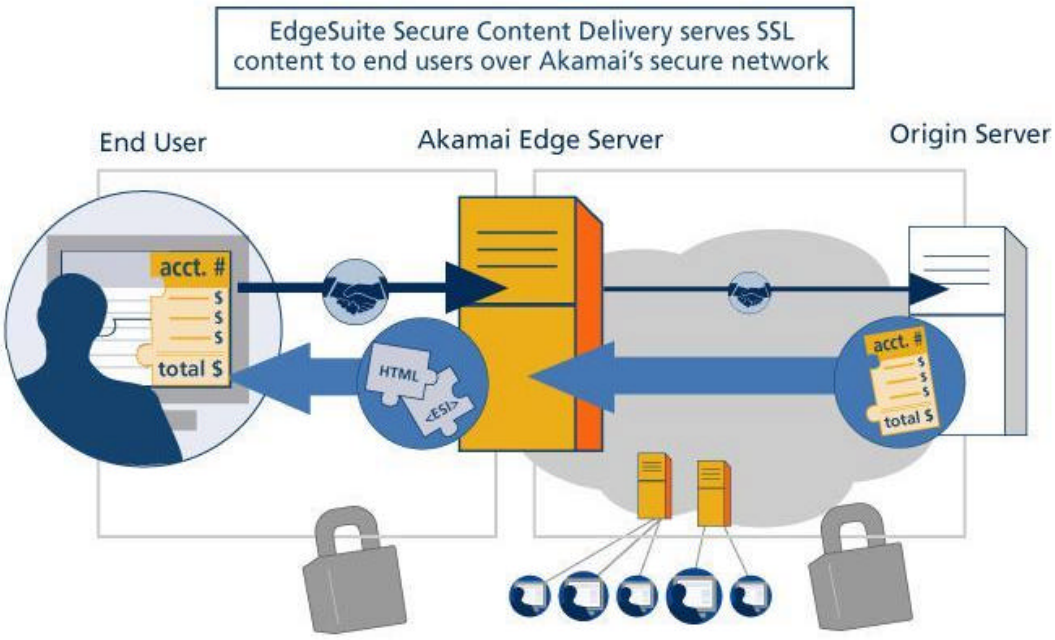
March'02 Peak results vs. Projection





EdgeSuite Functional Overview (slide 1 of 2)

- When an applicant requests the FOTW website, EdgeSuite resolves the user to 1 of ~13,000 servers that Akamai hosts across the Internet (in RBOC's, ISP's, Universities, etc).
- The Akamai servers sit between the applicants and the data center servers.
- As the applicant interacts with the Meriden website, the Akamai server caches the publicly available content from the host server.
- That way, the next time an applicant is resolved to that particular EdgeSuite server, some FOTW content is already cached "at the edge" of the Internet and only the applicant's responses are forwarded on to Meriden using SSL.
- The caching of content and the consolidation of SSL traffic reduces the resource requirements at the central data center.



EdgeSuite Functional Overview (slide 2 of 2)

- 10,000+ U.S. Servers, 1,000+ Networks act as "Proxy Servers" for FOTW public content
- EdgeSuite pathing logic selects most efficient cache server to deliver content to each aid applicant
- EdgeSuite "SureRoute" logic selects most efficient path between cache server and Meriden data center
- When available, utilization of browser-enabled compression further reduces response times
- 'KeepAlive' packets reduce overhead from reestablishing connections to FOTW host servers
- Applicant sessions are SSL encrypted. Applicant Privacy Act data is 100% SSL encrypted
- Cached notification page occurs in the event of a central-site related outage
- "SiteShield" filters legitimate Internet traffic through Akamai-only servers, greatly improving the efficacy of data center based Internet protection (Intrusion Detection, etc.)
    - *For 'SiteShield' to be effective, most Web-site traffic must be cached via EdgeSuite*

EdgeSuite: Implementation Timeline

- **Phase I*:**
  - **FOTW stress test (Sept 1 forward)**
  - **FOTW 6.0 production (Nov 1,'02)**
  - **FOTW 7.0 production (Jan 1,'03)**
- **Phase 2:**
  - **If justified by savings, FOTW application will be 'accommodated to enable business logic processing on cache servers (May-July,'03)**
    - **Skip logic is cacheable if FOTW's application supports 'Edge Java Processing' and 'Edge-Side Includes' open standards.**
  - **EdgeSuite rollout to FSA high-traffic sites , ie 'Group 1' Sites (Apr-June'03)**
  - **EdgeSuite rollout to 'Group 2' sites (July-Sep'03)**
- **Phase 3:**
  - **Install "Site Shield" added security (Oct,'03)**
  - **Group 1 application accommodations to permit Edge Java Processing (Aug-Dec,'03)**
  - **Group 2 application accommodations to permit Edge Java Processing (Aug-Dec,'03)**

** Initial contract modification covers only Phase 1*

EdgeSuite improves Students Channel service…

- **Reduces response times to FOTW applicants**
  - Average down from 1.5 seconds to .5 seconds (impact of static content cacheing only)
  - Hop count reduced from ~13 to <6 for static content "trips"
  - West Coast applicants benefit most
- **Maintains and potentially enhances security**
  - security similar to current VDC security, SSL security structure remains
  - Protection against malicious attacks – Denial of Service & unanticipated volumes
  - provides IP "moat" around masked Meriden IPs
- **No impact to the current customized ITA application**
  - Any application changes are voluntary and will only be made if cost-justified (ie, support for caching business logic)
  - All application changes will function even if EdgeSuite is no longer used
  - J2EE & other open standards (ESI) supported
- **Enhances error messaging in the event of a central-site related outage**
- **Leveragable to other FSA websites**

EdgeSuite improves infrastructure delivery…

- **Delays server infrastructure increases (until post-Aug, ’03 refresh)**
  - Students channel projects a 35-40% increase in FOTW submissions
- **Provides an alternate plan to meeting ’03/’04 web network growth at peak**
  - Primary ISP utilization in ‘02 was 32% over projected volume (53MBpS peak bandwidth v. 40MBpS projected out of 90MBpS current capacity)
  - Internet router utilization in ’02 was 72% over projected utilization (86% peak router utilization v. 50% projected utilization)
- **Non-invasive installation of the service (& cancellation)**
  - Implementation is as simple as a DNS change
- **Is a proven resource**
  - Delivers 80% of Content Delivery Network services (CDN) market
  - 13,000 deployed servers in over 1,000 Internet networks or ISP’s
  - Extensive commercial and public e-commerce customer base, positive USGS and FBI reference checks, positive commercial reference checks
- **Will save FSA money**
- **Enhances flexibility of deployed resources**