



Overcoming Application Delivery Headaches in the Cloud

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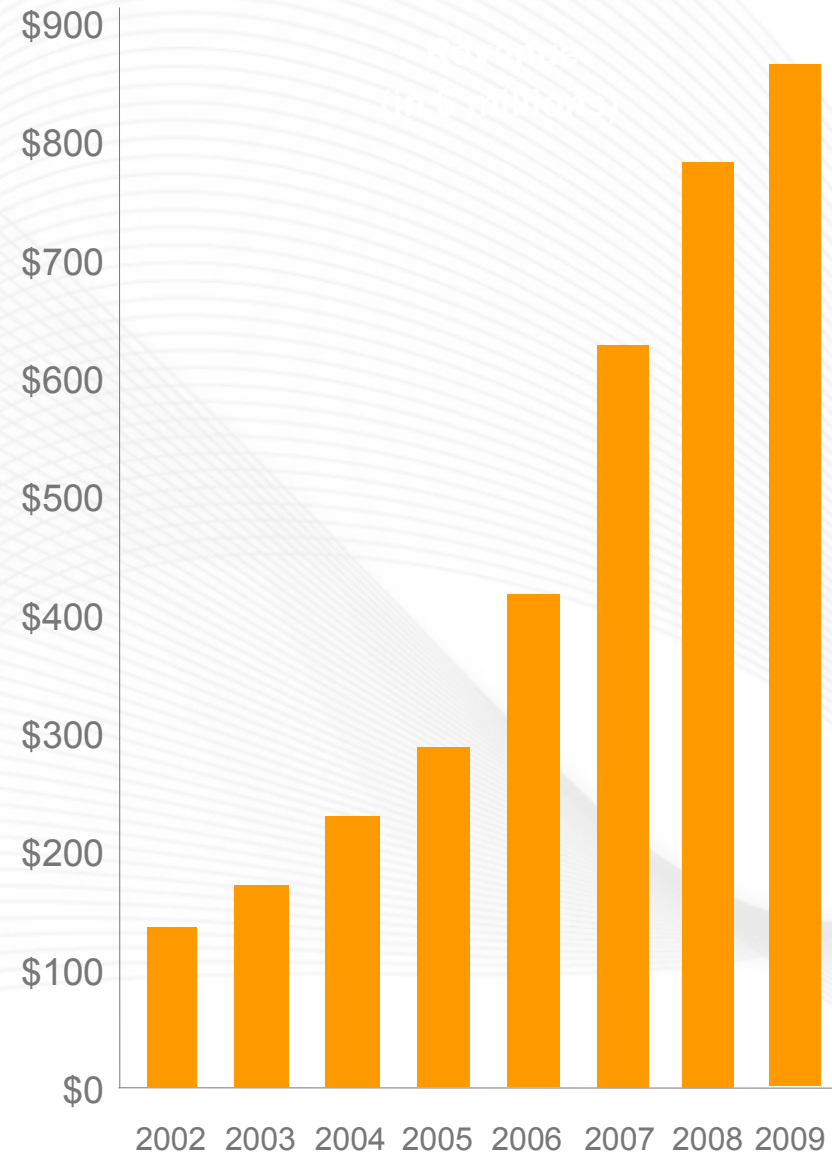
Akamai Technologies

April 6th, 2010

Akamai Snapshot



- Global managed services provider
- Accelerating:
 - Rich media
 - Dynamic transactions
 - Web and IP-based applications
- Enabling more relevant online advertising
- 2009 Revenue \$859M – 8.6% annual growth
- 2,900+ customers
 - 20%+ of Global 500



SaaS and Cloud Application Delivery Challenges



Fast, Reliable User Experience - Always

- Customer Acquisition
- End-user Adoption
- Provide installed experience
- Contract Renewal



Reach Markets/Users - Immediately

- Locally
- Nationally
- Globally

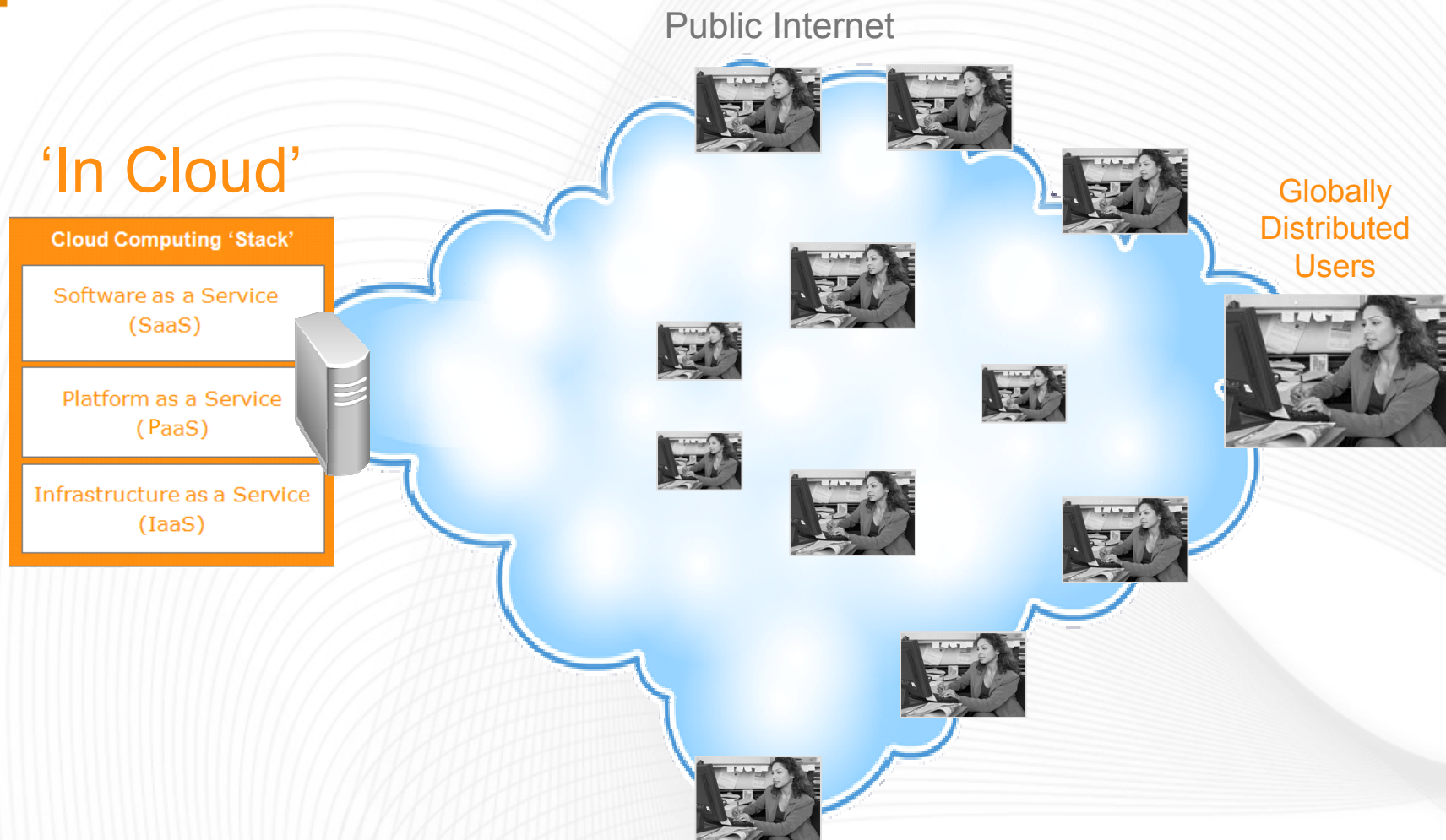


Minimize Costs – But Scale

- Centralize Infrastructure
- Capacity On-Demand
- Minimize Call-Center Volumes/Complaints



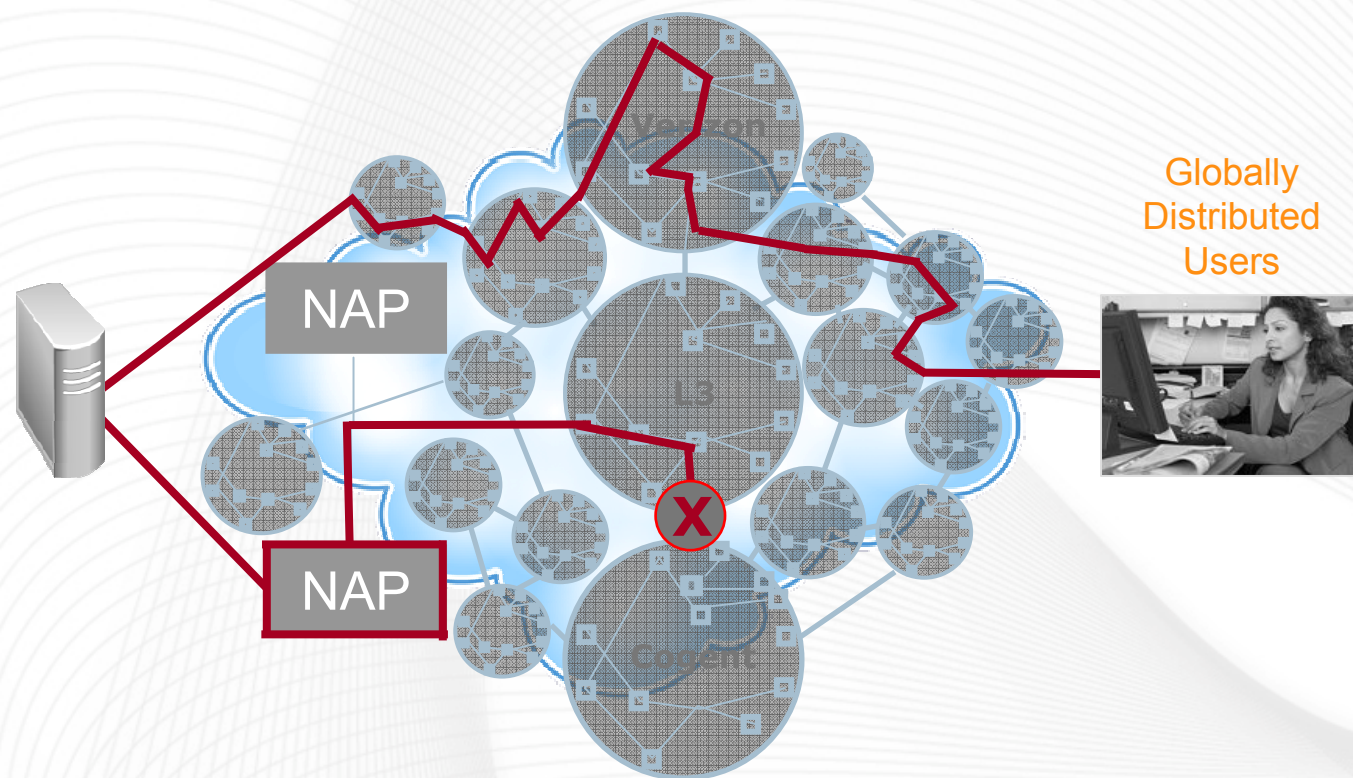
SaaS and Cloud Application Delivery Challenges



The distance between users and application does not change

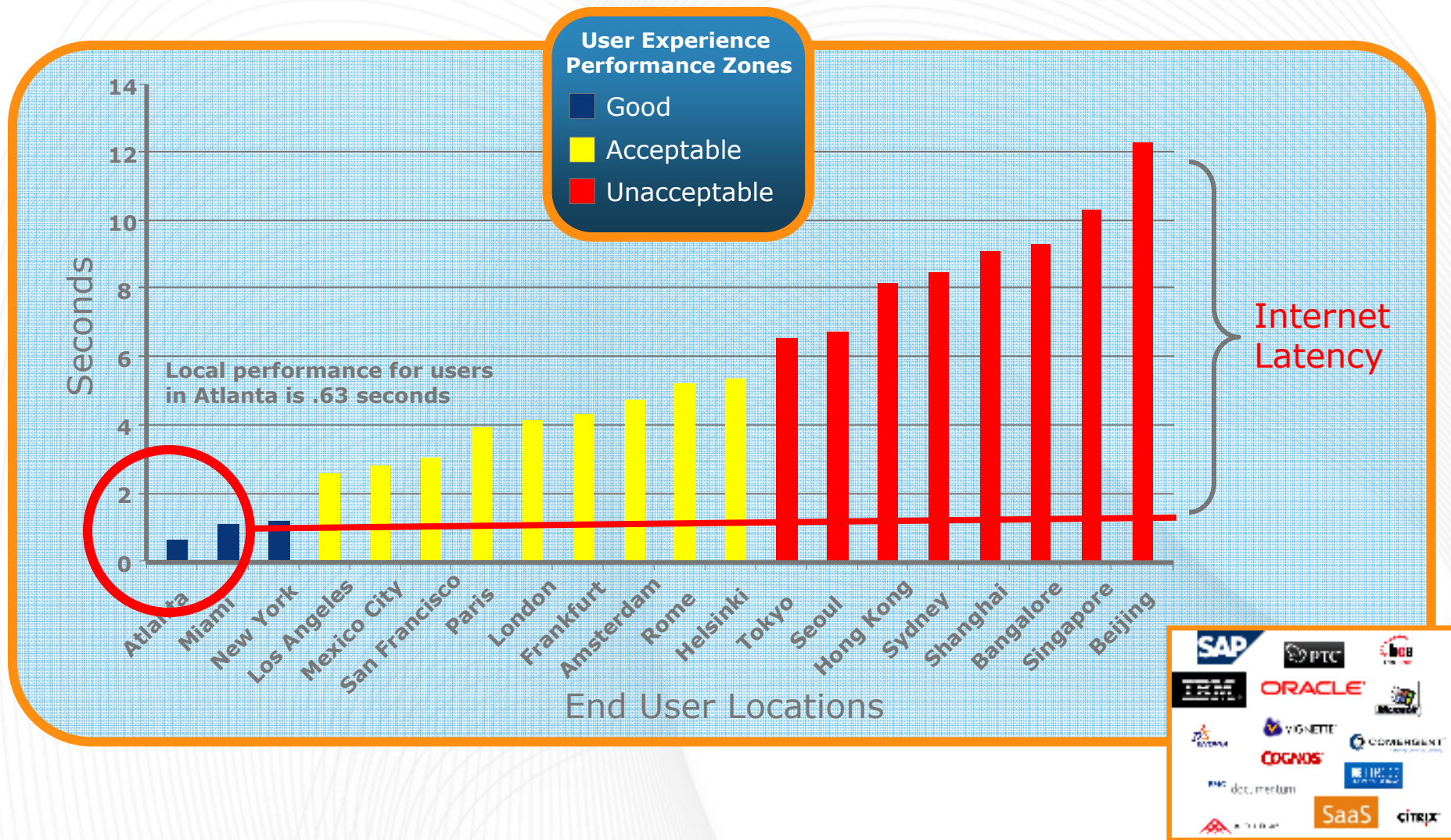
The Reality of the Internet "Cloud"

Unreliable by Nature & Not Optimized for Performance



13,000 Networks. Largest single network carries 8% traffic.

Internet Challenges on a good day



Example: Impact of the Internet Cloud on Web App Performance



First Mile

Application processing
time and content
generation

0.25 s

Middle Mile

Round Trip Time (RTT) X # Round Trips

250ms x **31 round trips** = 7.75 s

Last Mile

Bandwidth-related
transfer time

0.20 s

Total response time = 8.20 sec

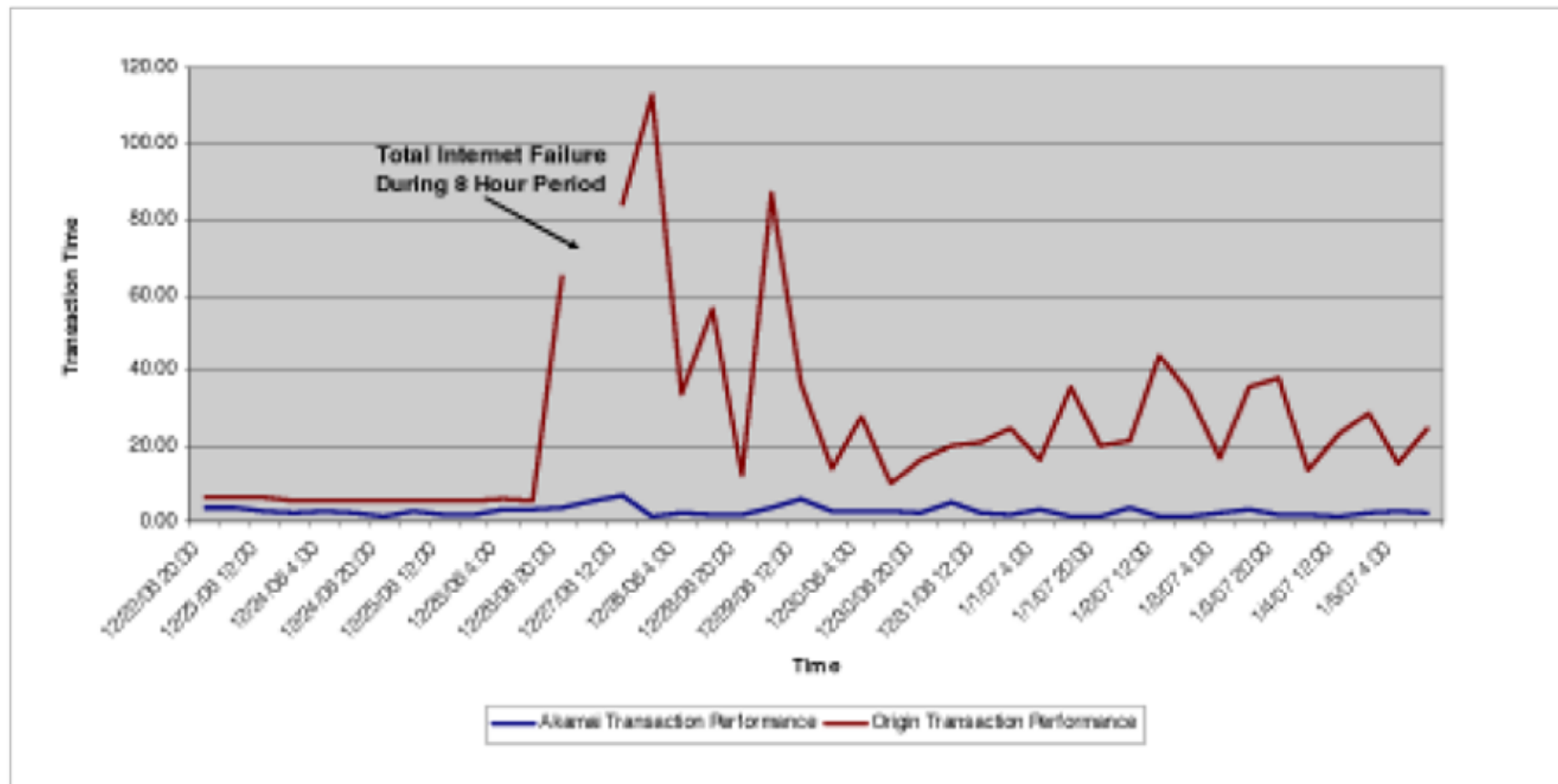
95% of total response time is due to the Middle-Mile

Internet Challenges on a bad day

Performance, scale, availability and security

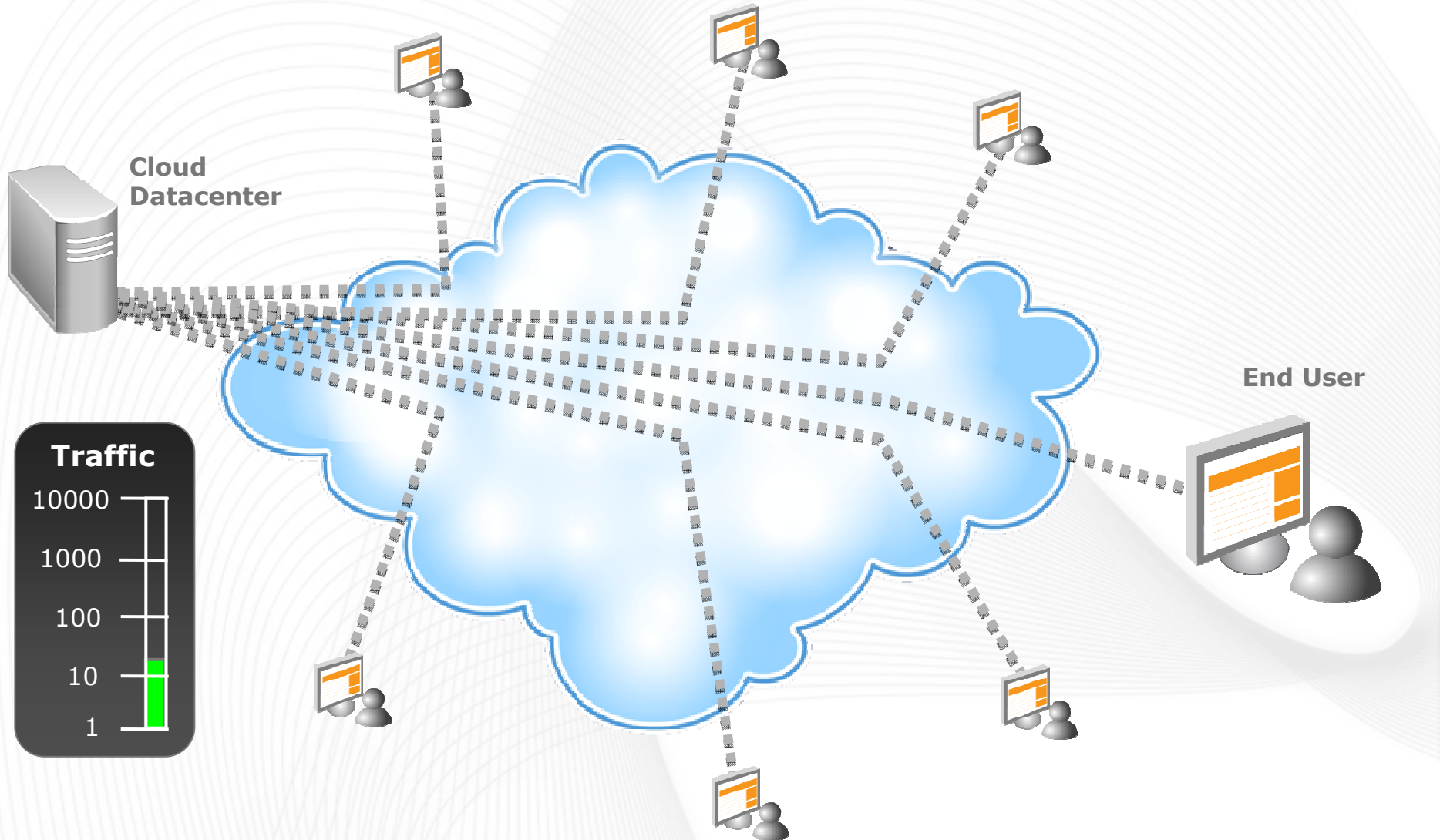


Internet Availability Issues Occur Regularly



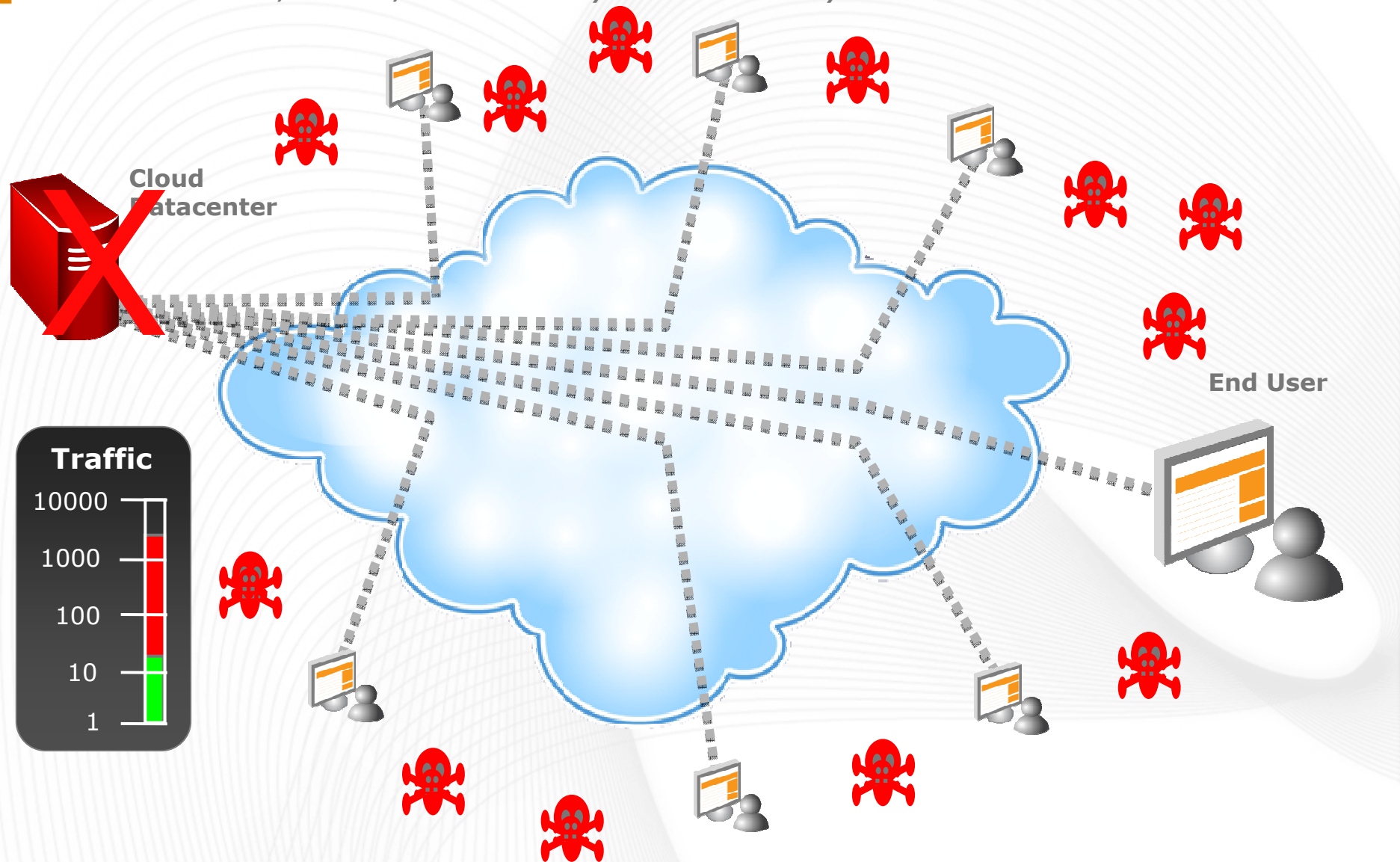
Internet Challenges on a good day

Performance, scale, availability and security



Internet Challenges on a bad day

Performance, scale, availability and security



Traditional CDN approach not designed for today's enterprise Web apps – much less IP-based apps



Application



End User



Majority of Application is
Dynamic Non-Cacheable

The screenshot shows the InterContinental Hotels & Resorts website. A red box highlights two main sections: the 'FIND A HOTEL' search form and the 'PRIORITY CLUB' rewards section. The search form includes fields for 'By: City', 'Country', 'Check-In Date', 'Check-Out Date', 'Rooms', and 'Guests'. The rewards section includes a login form for 'Email or Priority Club#' and 'PIN#', a 'GO' button, and a 'JOIN TODAY' button. The website also features a 'LOWEST INTERNET RATE GUARANTEE' banner and a 'Sign Up' button for email exclusives.

Distributed Cloud Services Still Face Challenges



- Cloud servers reside in big data centers, farther away from end users
- *Consequences*: Performance degradation and increased vulnerability
- Even users in the same country as the data-center are often subject to unacceptable performance and availability

Solution for App Delivery in the Cloud

Akamai's Highly Distributed, Global EdgePlatform



Deploy servers into thousands of ISPs
close to applications & end users

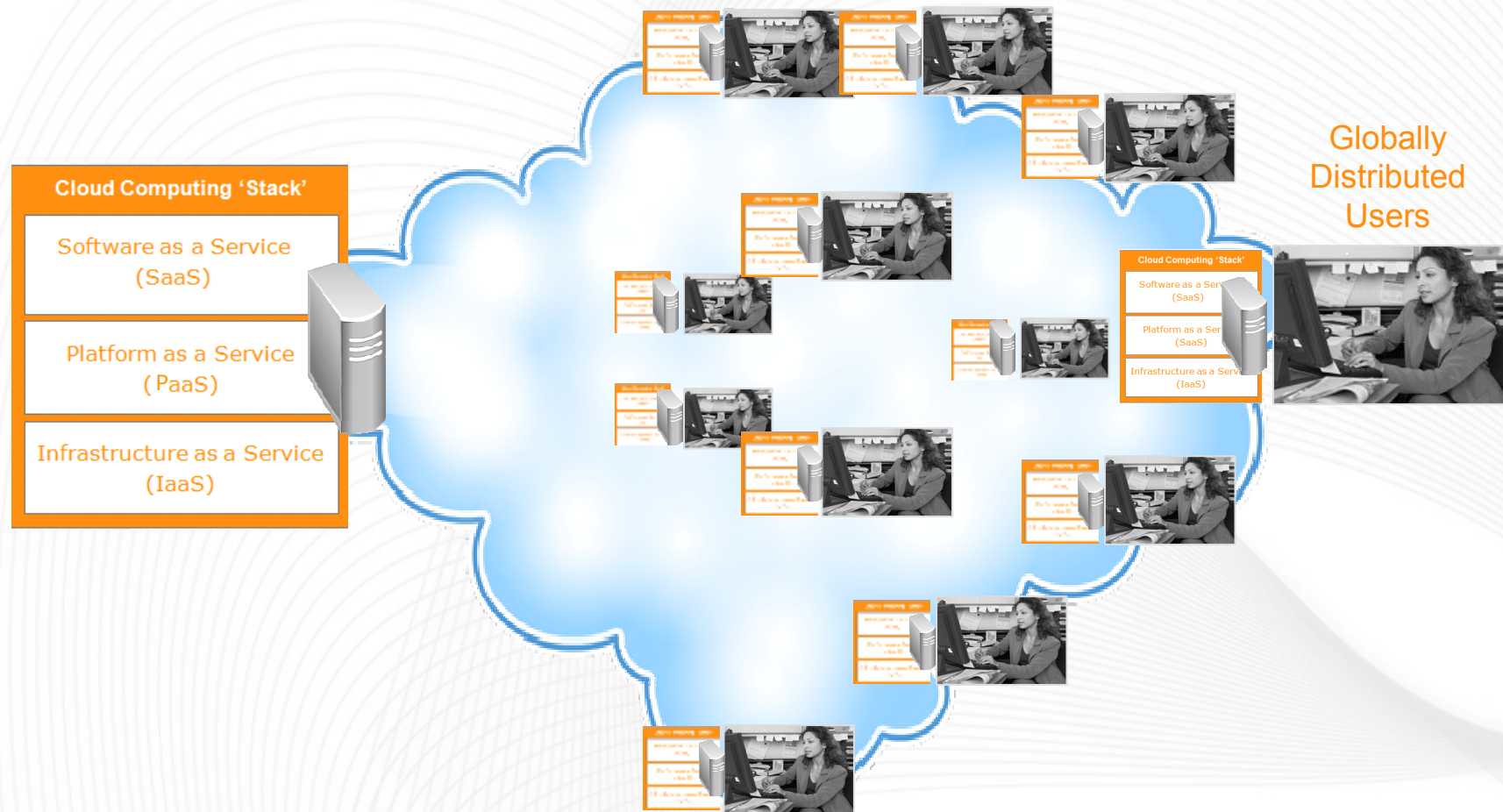
- 60,000+ Servers
1,500+ Locations
900+ Networks
- Akamai "edge" is within one network hop of 90% of Internet users
- Transparent to end-users and applications
- Managed services based on DNS resolution



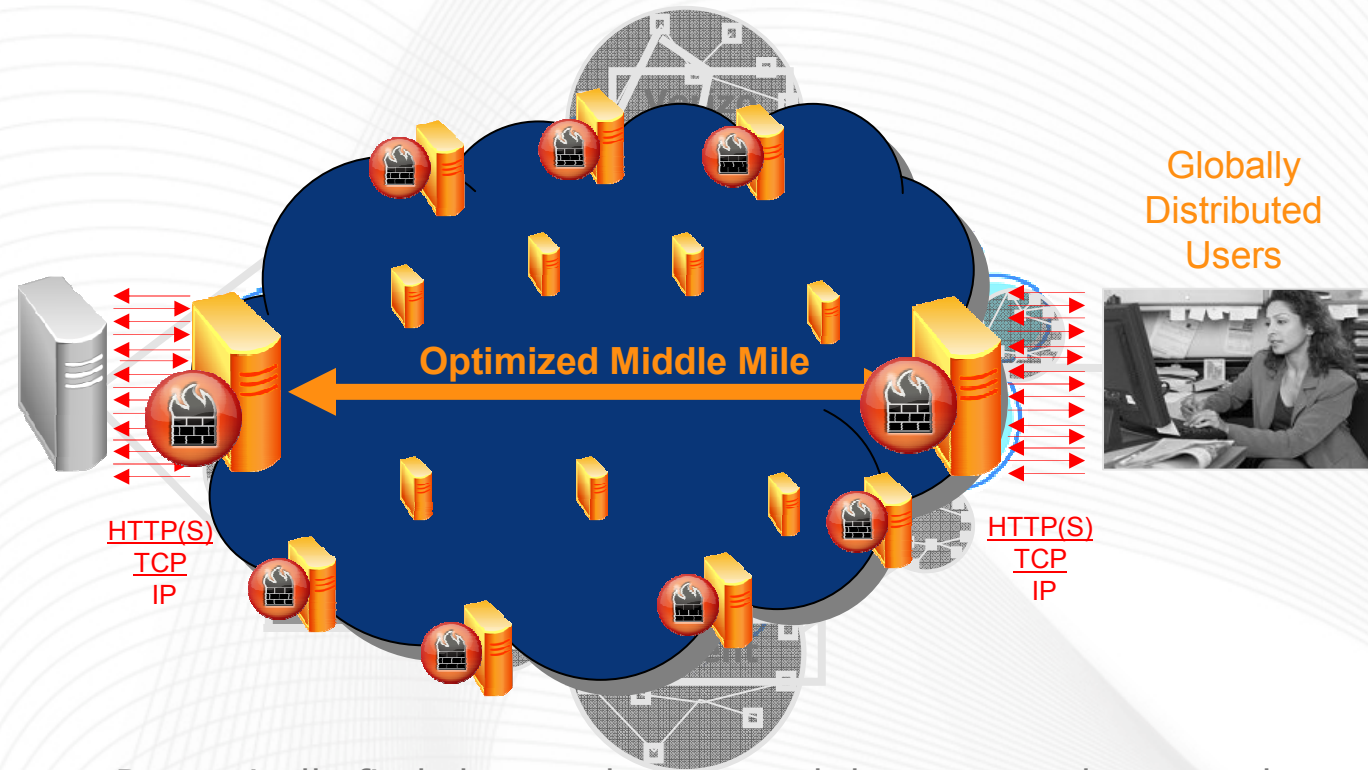
Approach – Make the application feel 'local' to the end user



Public Internet



Solution – Intelligent overlay network

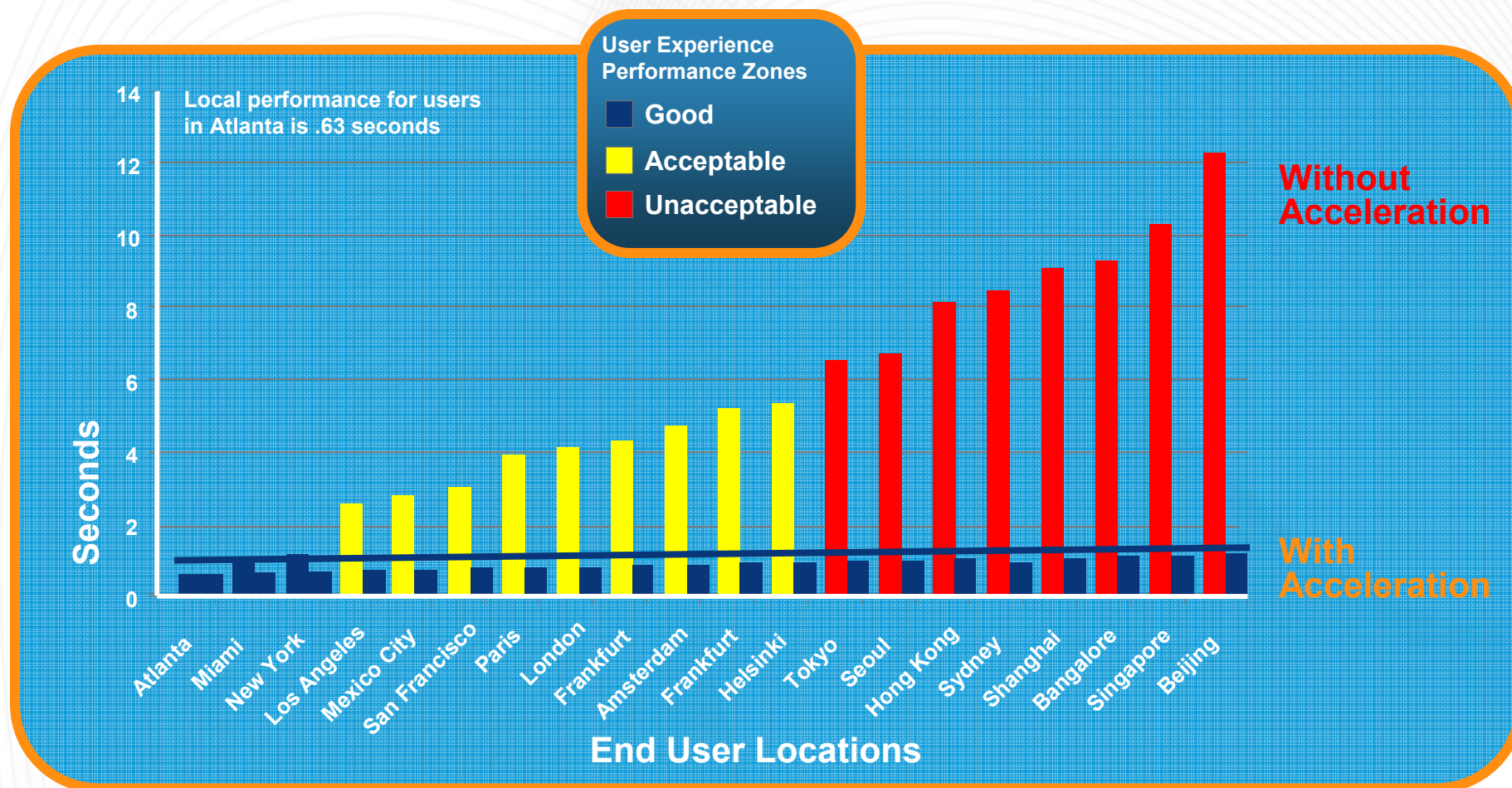


Route	Dynamically find shortest latency path between end-user and application origin; Route around congestion and packet loss
Transport	Eliminate round trips and maximize throughput on optimized path
Application	Speed end-user response time with intelligent pre-fetching, compression and advanced caching
Security	Web Application Firewall and Origin Cloaking

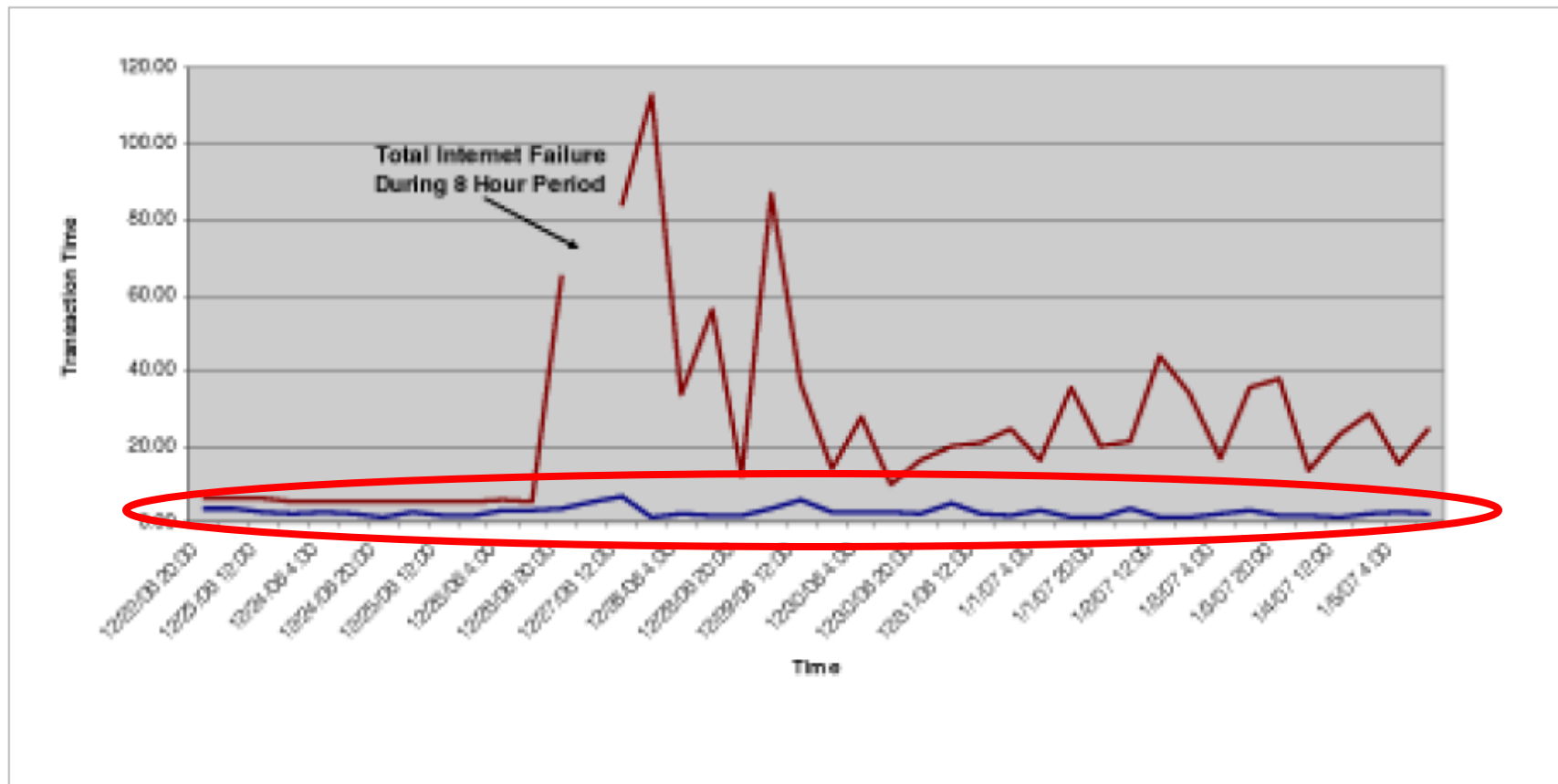
Performance - "Flatten the World"



Users feel close to the application regardless of location



Web Transaction Data (Dec. 22nd – Jan. 5th)



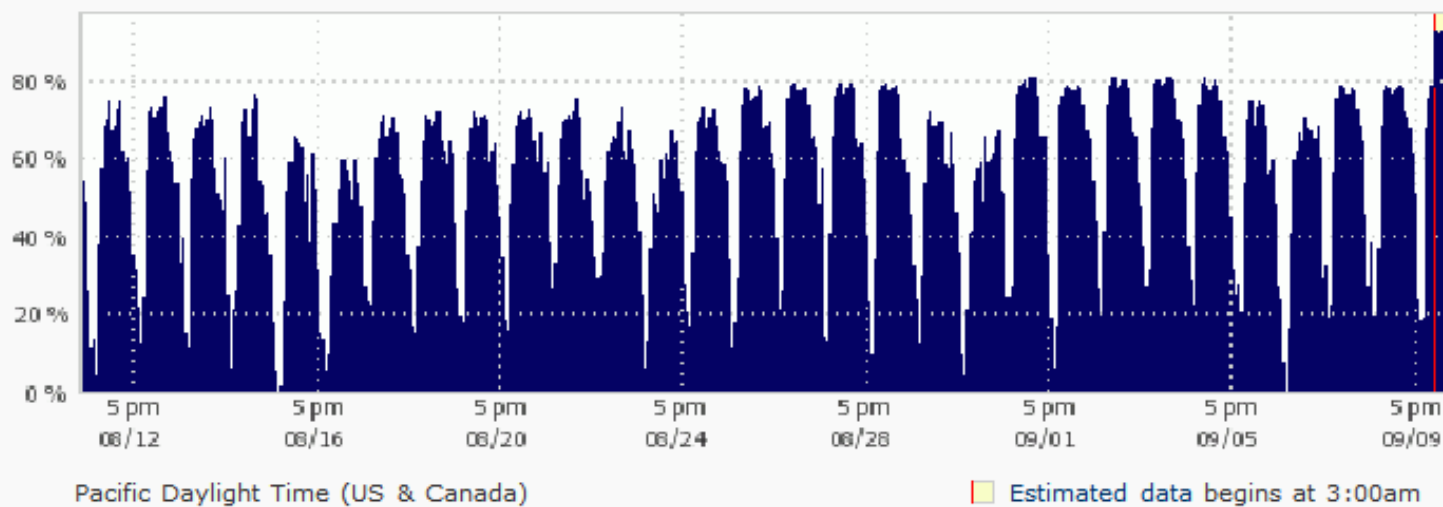
Scale



Origin Offload of Hits

This graph shows the extent to which Akamai Edge Servers reduced the number of hits on your origin.

Origin Hits Reduction: **70.3%**



Reduction in HTTP requests to Origin: **70%**

Security

Example – July 4th Layer 7 DDoS



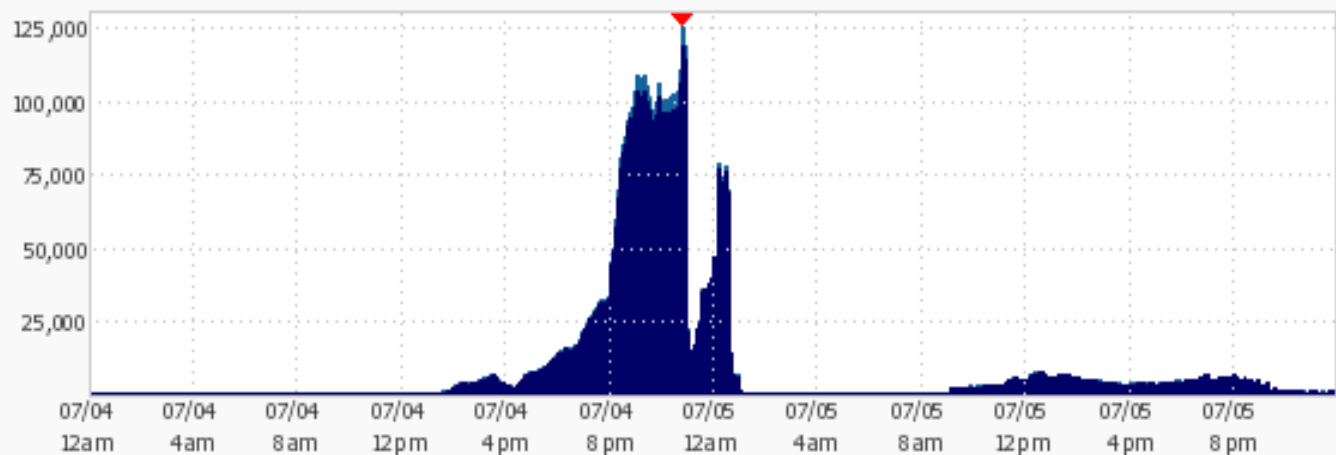
Site Content Accelerated, in Mbits per Second

Total bandwidth includes all request traffic plus edge, midgress, and origin response traffic.

Total Volume: **221.3 TB**

▼ Peak: **124,879.05 MBits/sec** at 10:50PM

◄ Latest: **1,001.46 MBits/sec** at 11:50PM



- **Cloud predictions**
 - By 2014, more than 80% of all successful SaaS/cloud service providers to large enterprises (up from less than 10% in 2009) will integrate network optimization into their core offering to improve user experience and reduce bandwidth costs.

Gartner Predicts 2010: Cloud Computing Emerges From the Hype, Scope and Issues Demand Clarification – 12/7/09
ID Number: G00173044

Application Delivery in the Cloud

Applications to anyone, anywhere, anytime



Performance

Scale

Availability

Security

Visibility



BullHorn

Problem:

Ensure consistent performance and delivery of their on-demand Staffing & Recruitment application across their global customer base

Solution:



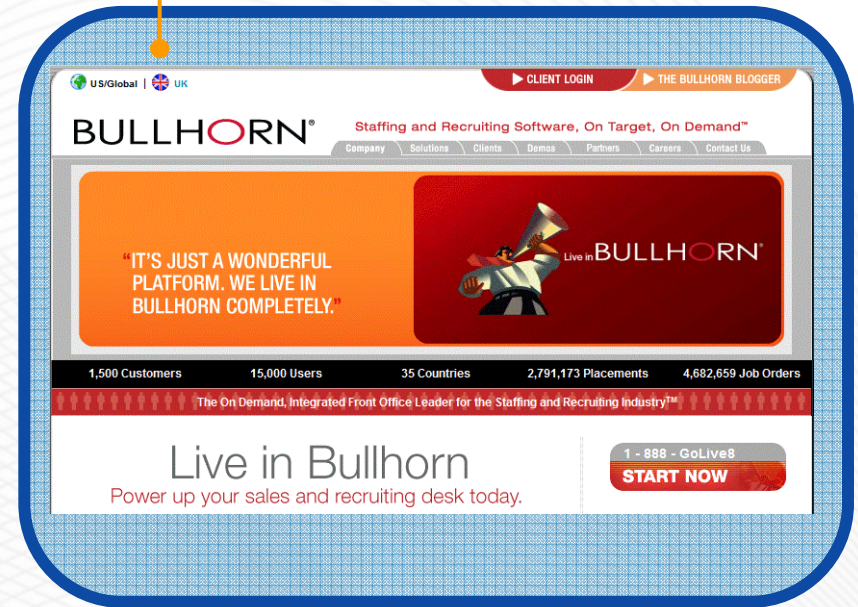
Web Application Accelerator

Impact:

- Reduced performance related help desk calls **by 95%**
- Increase in International sales **by 1000%** Quarter on Quarter.
- Allowed Bullhorn to focus on their core business services
- Provided a competitive advantage when pursuing prospects globally
- Eliminated costly expenditure on Infrastructure build out

"With Akamai in place, our customers are happy because they can quickly access our application and transact business"

—Art Papas, Founder and CEO, Bullhorn



Satuit Technologies



Problem:

Ensure the flawless delivery of on-demand SFA & CRM software to globally distributed subscribers

Solution:



Web Application Accelerator



Impact:

- Reduced performance related call center complaints **by 40%**
- Increased Asia-Pac page views **by 59%** and US **by 30%**
- Offloaded application server traffic **by nearly 66%**, doubling subscriber capacity per server
- Eliminated need to build-out international data centers

"Even though Internet performance issues are largely out of our control, our customers expect us to deliver highly responsive applications. With Akamai, we're able to do that."
- Njal Larson, VP Product Strategy

Leading SaaS Company using EC2



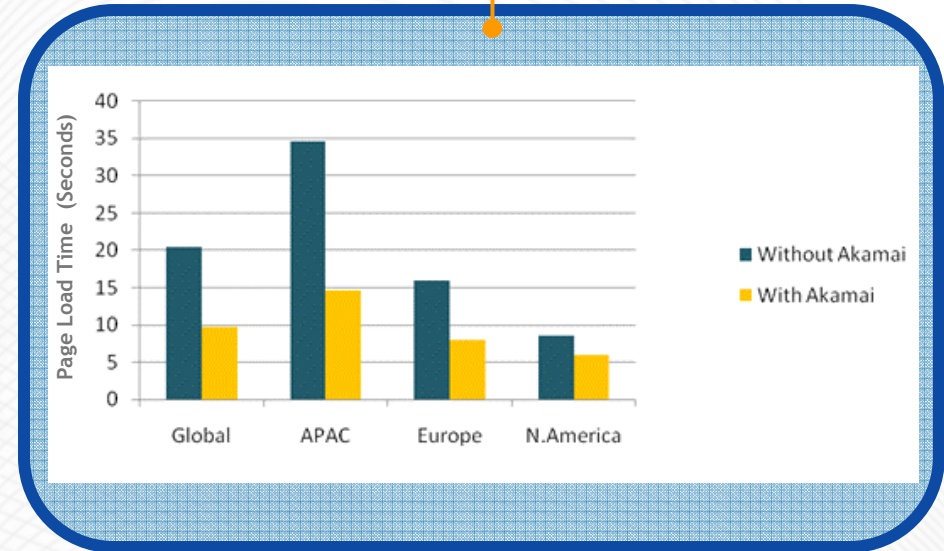
Problem:

Chose to host application on Amazon EC2 instead of building out multiple datacenters. Realized that moving to the cloud did not diminish need for performance acceleration.

Solution:



Web Application Accelerator



Goal:

- Consistently provide fast response times to users, particularly in Europe and Asia

Impact:

- Average global improvement of **110%**, with improved performance for users farther away from the cloud infrastructure
- Seamlessly integrates with current set up, with quick deployment
- Requires no upfront capital expenditure
- Company can now focus on their core competence, adding new capabilities

Summary



Cloud Considerations

- SaaS ISVs
 - User Footprint
 - Content Type
 - Customer Experience
 - Ability to Scale
- SaaS/Cloud Adopters
 - User Footprint
 - Cloud Strategy - Providers
 - Performance
 - Availability
 - Akamai

