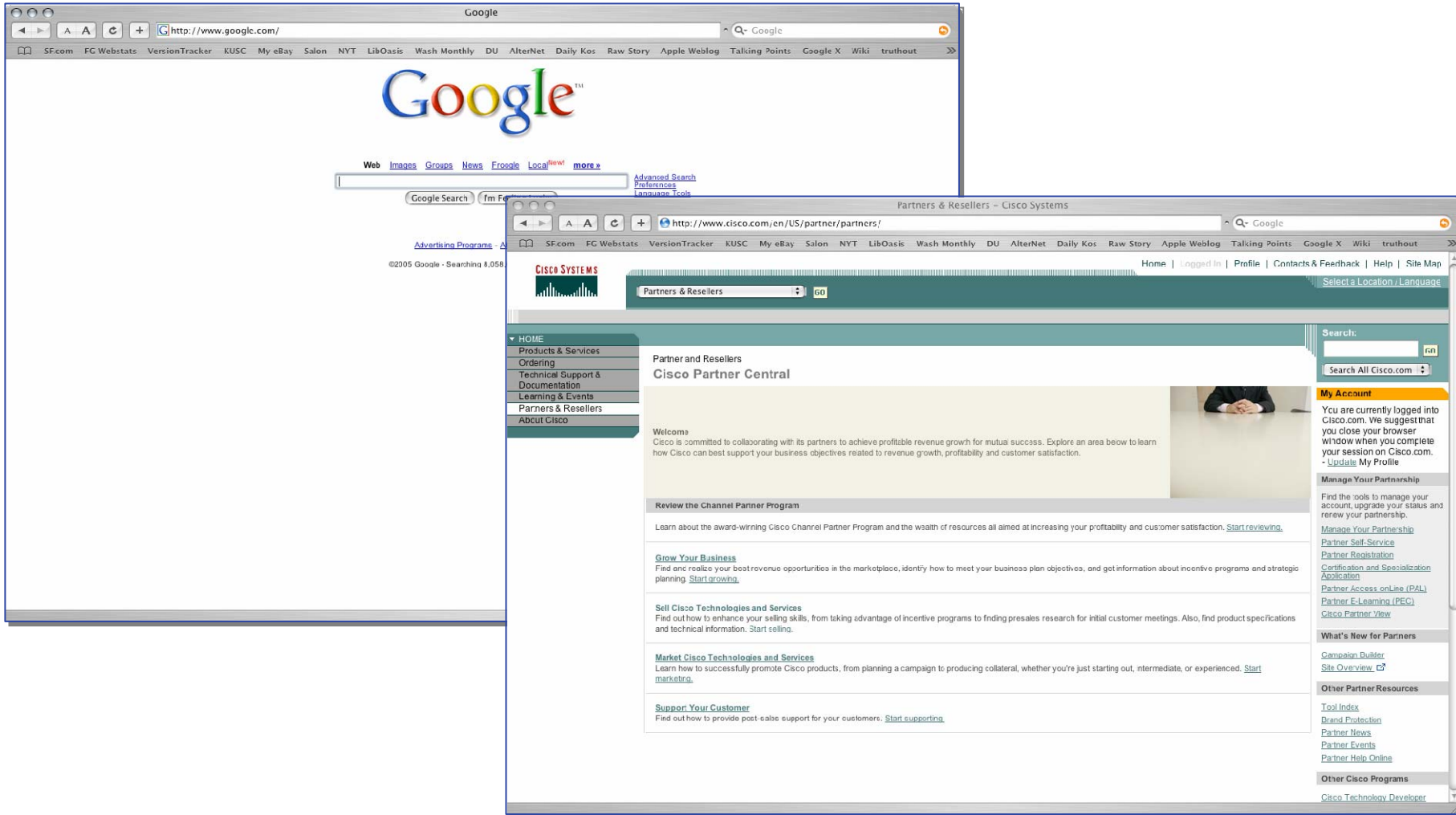


Better Performance over the Internet: Presentation for N+I

April 2005

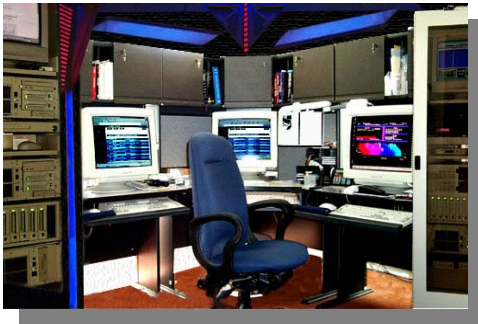
Websites are no longer simply Websites



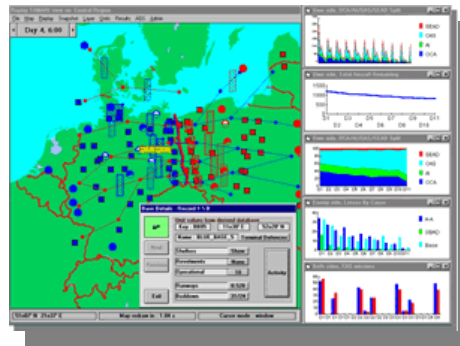
Constraining the Acceleration Problem

- » Solutions can rarely control end-points on the web
 - Individual users
 - Business partners
- » Application development barely understands networking
 - Written for the “next bench”
 - Tested in the data center
- » IT speaks different languages
 - Networking
 - Applications
 - Storage

Web “Applications” Create Added IT Challenges



- » IT is more centralized and consolidated while users are more dispersed - less able to replicate hosting
- » More concern for management costs vs. infrastructure costs



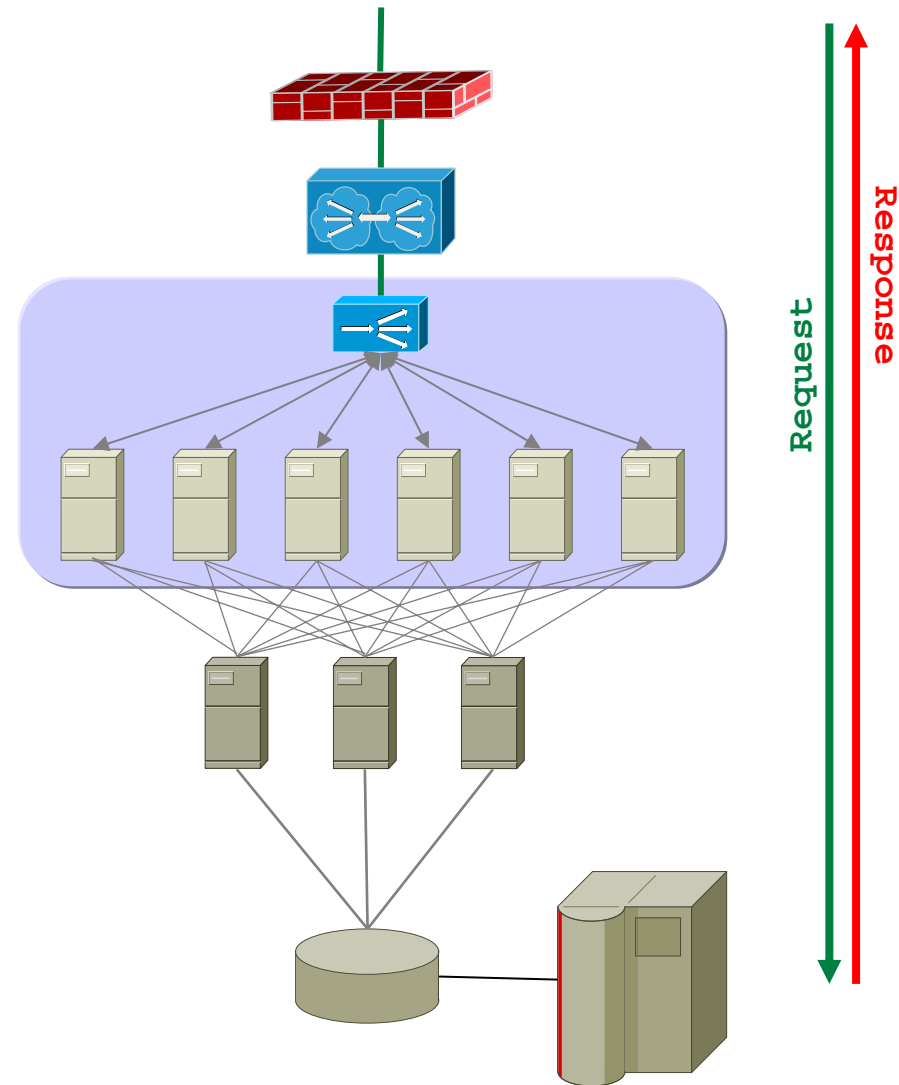
- » Potentially less overall content but more overall application complexity
- » More dynamic content
- » More use of packaged applications and frameworks (e.g. portals)



- » More complex and rigorous security and authentication requirements

The Original Web Tier

- » Provide scalability for large websites
 - Usually large volumes of simple transactions and requests
 - Use a load balancer to balance across web tier
- » Supplement with “remote” caching and replicated hosting
- » Provides common services for application servers
 - Manage TCP/IP session connectivity and persistence
 - Compress and uncompress content
 - Encrypt and decrypt for secure communications

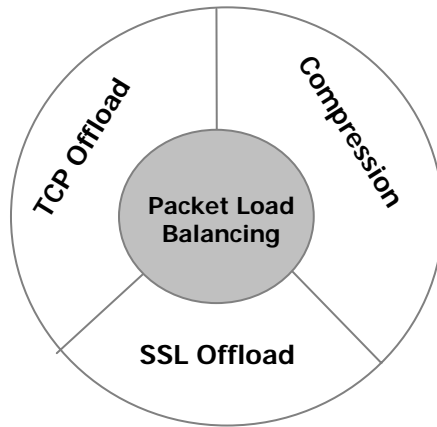


Applications on the Web Differ Greatly

	Applications on the Web	Public Websites
Session volume	Perhaps less	Extremely high
Session length	Relatively long	Extremely short
Transaction types	More complex	Simple
Security	Loads of SSL	Very limited SSL
Infrastructure	Fewer servers: minimize software and management costs	Large numbers of similar low-cost systems running standard web software

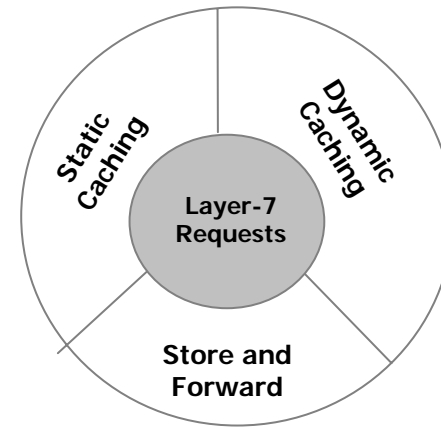
The Limits of the Load Balancer and the Cache

“Switch” Architecture



- Process packets, manage transfers, deliver throughput
- Limitations
 - No concept of application
 - No concept of session
 - Packets must go without loss
 - Compression can create a burden somewhere in the infrastructure

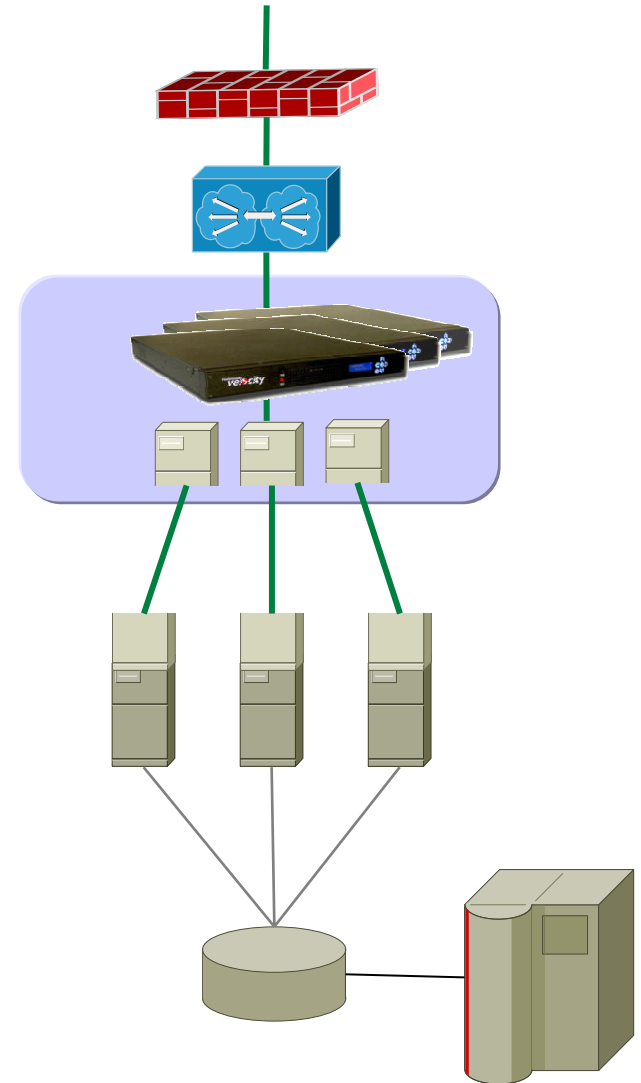
“Caching” Architecture



- Process content, deliver fast response
- Limitations
 - Primarily static caching
 - Often requires very complex rules
 - Often requires application rewrites
 - Services generally “pay-as-you-go” models

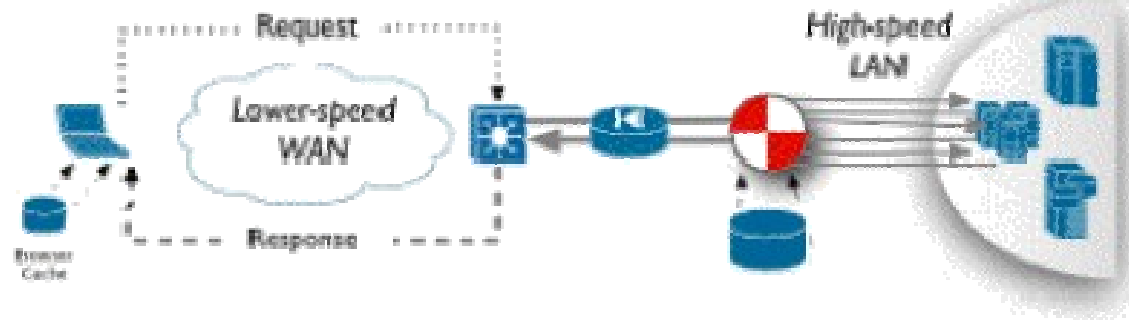
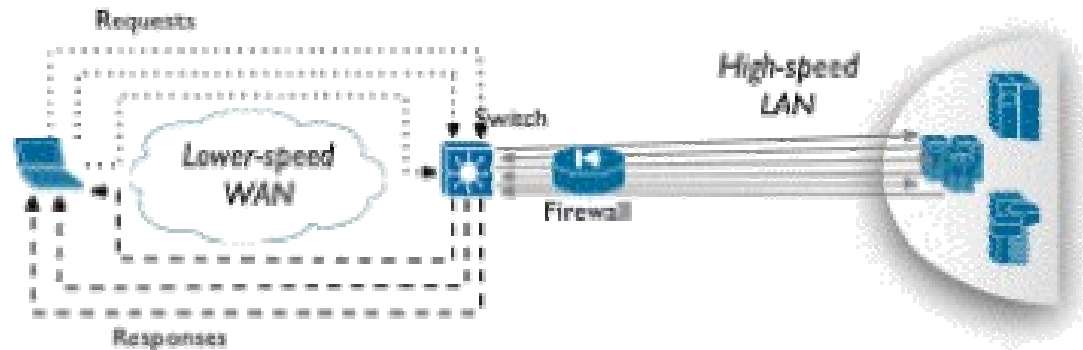
The Next-Generation Web-Tier

- » Easily managed from the data center
- » Integrate multiple techniques and approaches
- » Require minimal or no changes to applications
- » Can incorporate application-specific optimizations
- » Can incorporate "measurement"
- » Can incorporate "security"



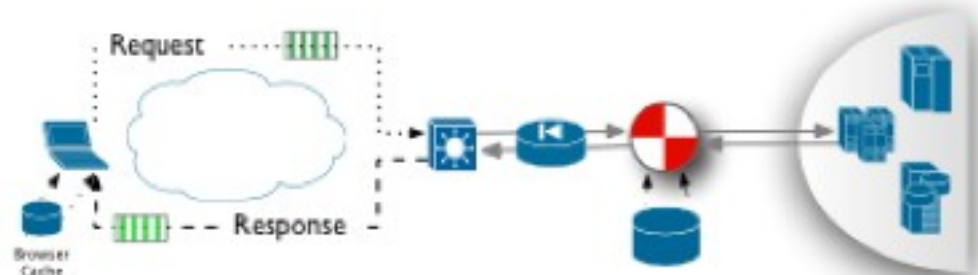
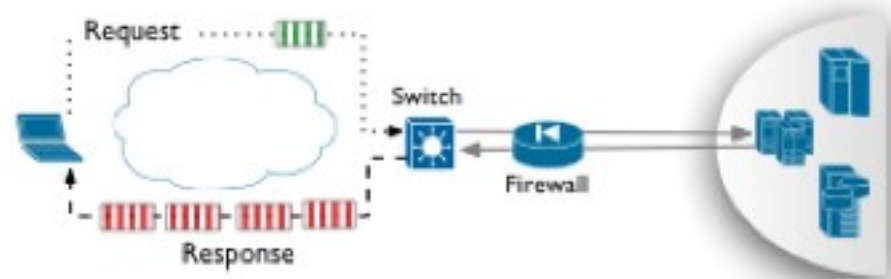
FineGround EAD Manages Network Latency

- » Minimizes network roundtrips per page or transaction
- » Proxy manages sessions for both clients and servers
- » Includes both proprietary and industry-standard features
 - FlashForward object acceleration
 - Smart redirect
 - Fast redirect
 - FlashConnect
- » Multiplies performance benefits under SSL



FineGround EAD Minimizes Bandwidth Needs

- » Intelligently reduces content payloads
- » Converts browser cache into dynamic engine
- » Includes both proprietary and industry-standard features
 - Delta Optimization
 - Smart Image Compression
 - Just-in-time object acceleration
 - GZIP and DEFLATE compression
- » Leapfrogs compression alone
- » Multiplies performance benefits under SSL
- » Leverages existing caching and CDN



FineGround EAD Provides Secure Optimization

- » Operates in multiple modes
 - Clear text
 - SSL termination
 - SSL proxy
- » Optimizations reinforce each other
 - Fewer bytes to encrypt and fewer packets
 - Fewer network traversals
 - More efficient SSL session management
 - More efficient authentication
- » Compatible with SSL cards

Customer Example: BMW UK



BMW
Great Britain

The Ultimate
Driving Machine





Vertical: Automotive
HQ: Germany
Profile: #1 luxury car brand

- » Business Challenge
 - Poor performance of used-car clearinghouse application at dealerships
 - Losing “fastest” home page battle to Jaguar, especially for customers connecting with “narrowband”

- » IT Environment
 - Custom dealer portal
 - Hosted environment

- » Business Impact
 - Faster turnover of used cars online
 - Regained high-touch brand experience online

Customer Example: US Army



Vertical: Defense
HQ: The Pentagon,
Arlington, VA
Profile: 1.67MM personnel

- » Business Challenge
 - Cost pressures demanding move to online business processes to eliminate centralized data management and printing
 - Support all personnel around the globe with an average of 300,000 concurrent users

- » IT Environment
 - Appian Enterprise Portal
 - Global environment with strict availability and performance requirements

- » Business Impact
 - Dramatically improved application utilization