



# AX Series

**Increase your Application Performance & Availability while reducing your TCO**

Harry Driedijk

# A10 Networks Company Overview

- Mission: The Technology Leader in Application Networking
- Flagship Product
  - AX Series – Application Networking Platform
- Lee Chen – Founder/CEO. Co-founder of Foundry Networks, co-founder of Centillion
- Headquarters in San Jose, California; offices worldwide
- 325 employees worldwide
- Profitable throughout 2010 and 18 consecutive quarters revenue growth
  - 4th fastest growing private company in Silicon Valley & #1 fastest growing private Computer Hardware company in North America

# Recent 2011 Accolades

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**Inc.  
500**

Ranked as #1 Computer Hardware company and winner for two consecutive years

3,786% Three Year revenue growth

Top 10 Internet Company



64-bit AX Series won Best of Microsoft TechEd in the Networking category for innovation & technology leadership

**TOP  
WORK  
PLACES  
2011**

**BayAreaNewsGroup**

Ranked as #6; and winner for two consecutive years. Top technology company in category.

**BEST  
OF SHOW AWARD  
INTEROP  
TOKYO 17-18 JUNE 2011**

AX Series IPv4 Exhaustion and IPv6 Migration Solutions win for Solution & Service Section – Network Solution.

# A10 Networks and Microsoft

- Microsoft is an official partner with A10 and a customer
- Best of Microsoft TechEd winner 2010 for the AX Series
- AX certified for Microsoft Exchange 2010, Sharepoint and Lync Server
  - February 2011
  - <http://technet.microsoft.com/en-us/exchange/gg176682.aspx>
- Microsoft Application Solutions page
  - [http://www.a10networks.com/solutions/application\\_solutions\\_microsoft.php](http://www.a10networks.com/solutions/application_solutions_microsoft.php)
  - Features comprehensive deployment guides for Microsoft products



*“We researched the three major load balancing solutions on the market and were delighted to learn we could deploy AX Series for the most superior technology at a fraction of the price”.*  
*Tom Lee, IT Supervisor for Infrastructure, Shasta County*

# What Do We Do?

- Ensure your Infrastructure and Applications are:
  - Highly-Performant
  - Optimally Available
  - Most Cost Effective
- Dramatically reduce TCO of application and data infrastructure
- Redistribute Operational Expense to fund growth
- Provide next generation application intelligence for your infrastructure

# AX Series' 3 Addressable Markets

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## IPv6 Migration

IPv4 Extension

IPv4 & IPv6 Co-existence

Native IPv6

## Application Delivery

Improve User Experience

Reduce Infrastructure

Increase Availability

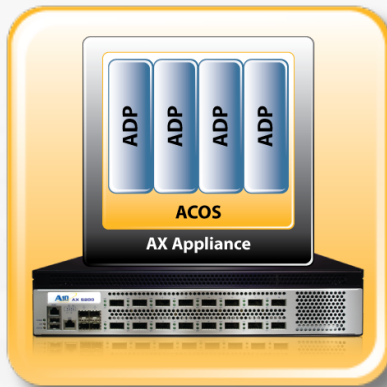
## Cloud Computing & Virtualization



# Ensure optimum TCO : Virtualization

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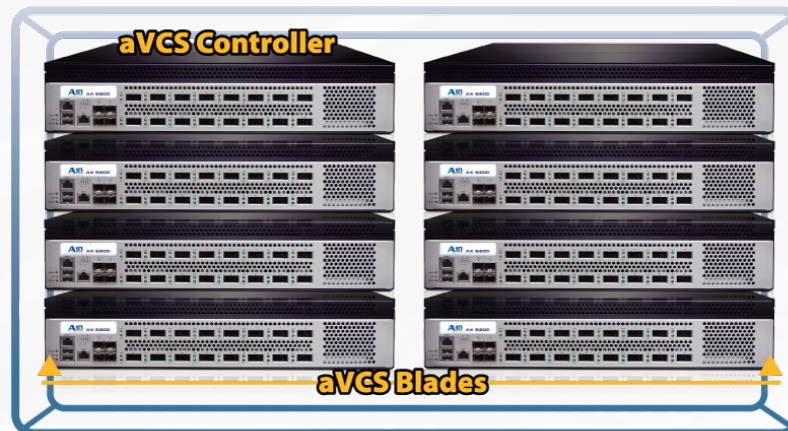
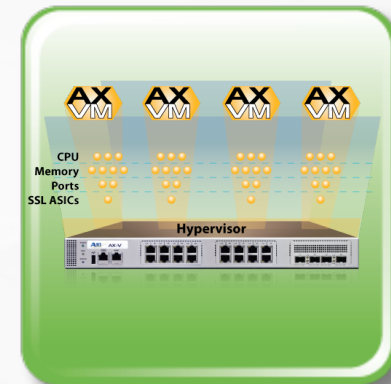
## Application Delivery Partition (ADP) Feature:



## SoftAX:



## AX-V:



# Single Solution, Differentiated Value

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## Application Delivery

Improve User Experience  
Reduce Infrastructure  
Increase Availability

## IPv6 Migration

LSN (Large Scale NAT)  
Dual-Stack Lite  
SLB-PT  
NAT64/DNS64

## Cloud Computing & Virtualization

L2/L3 Virtualization  
Soft-AX  
AX-V  
Virtual Chassis



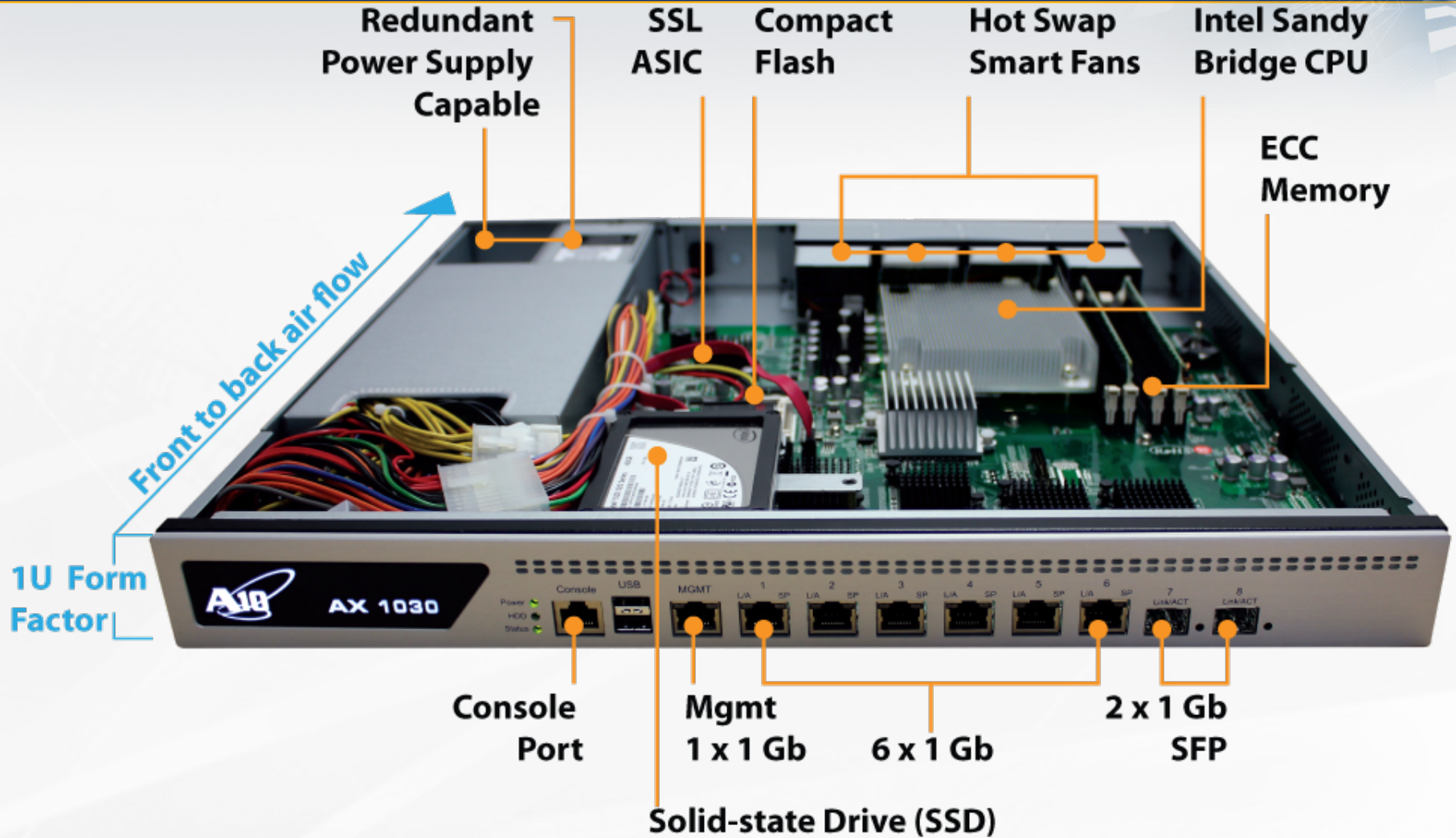


# What are A10 networks USP's?

- Superior System Design & Architecture
  - Scalable Symmetrical Multi Processing
  - Decoupled CPU's
  - Shared Memory
  - 32B & 64Bit
  - Feature Rich
  - Performance Rich
- Licensing Model
  - All Features – one Price
- Support & Development Capability
  - Full Support for all Features
  - Rapid Feature Development

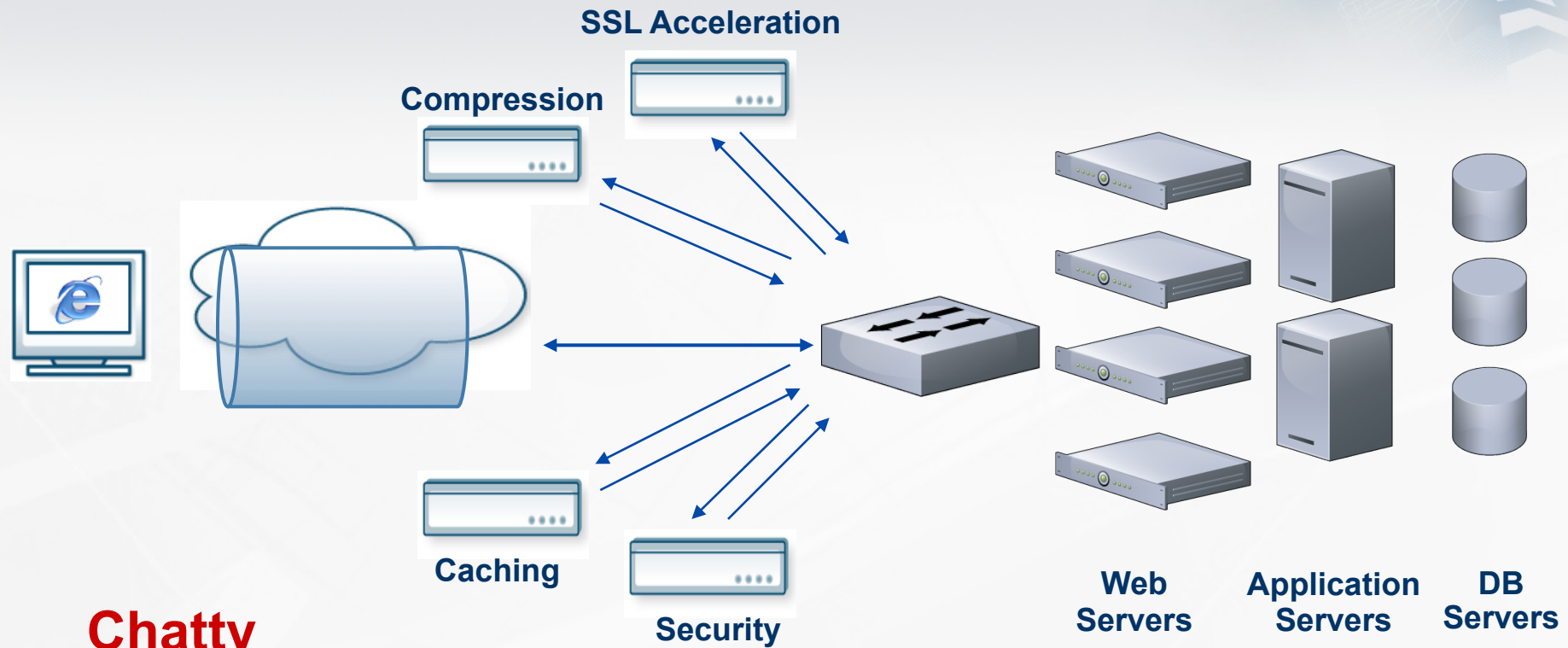


# AX 1030 Hardware Overview



# Core Web App Delivery Challenges

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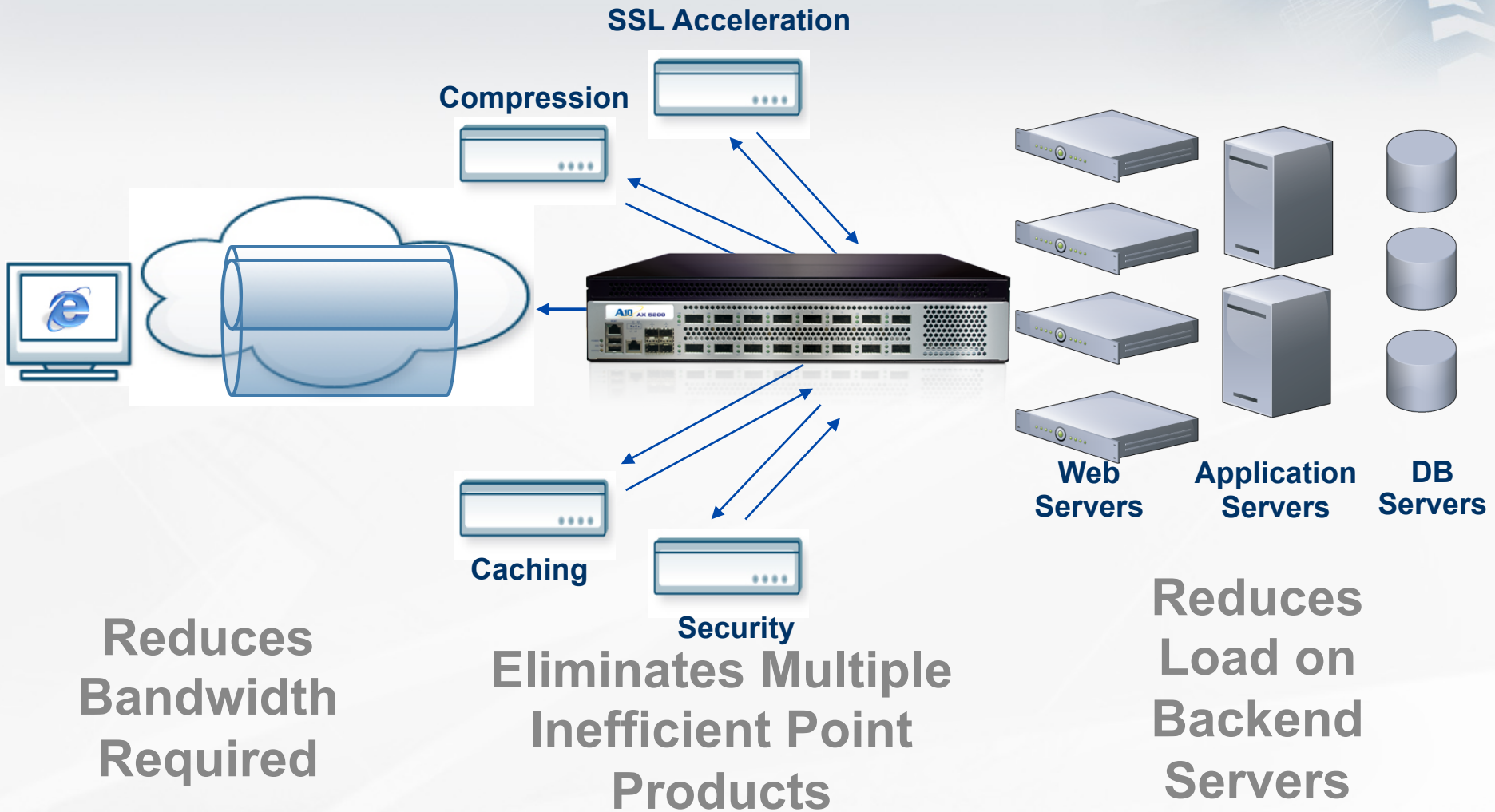
**Chatty  
Protocols,  
Long Hauls,  
High Latency**

**Variety of Point  
Products**

**Servers  
Add  
Up Quickly**

# AX Series

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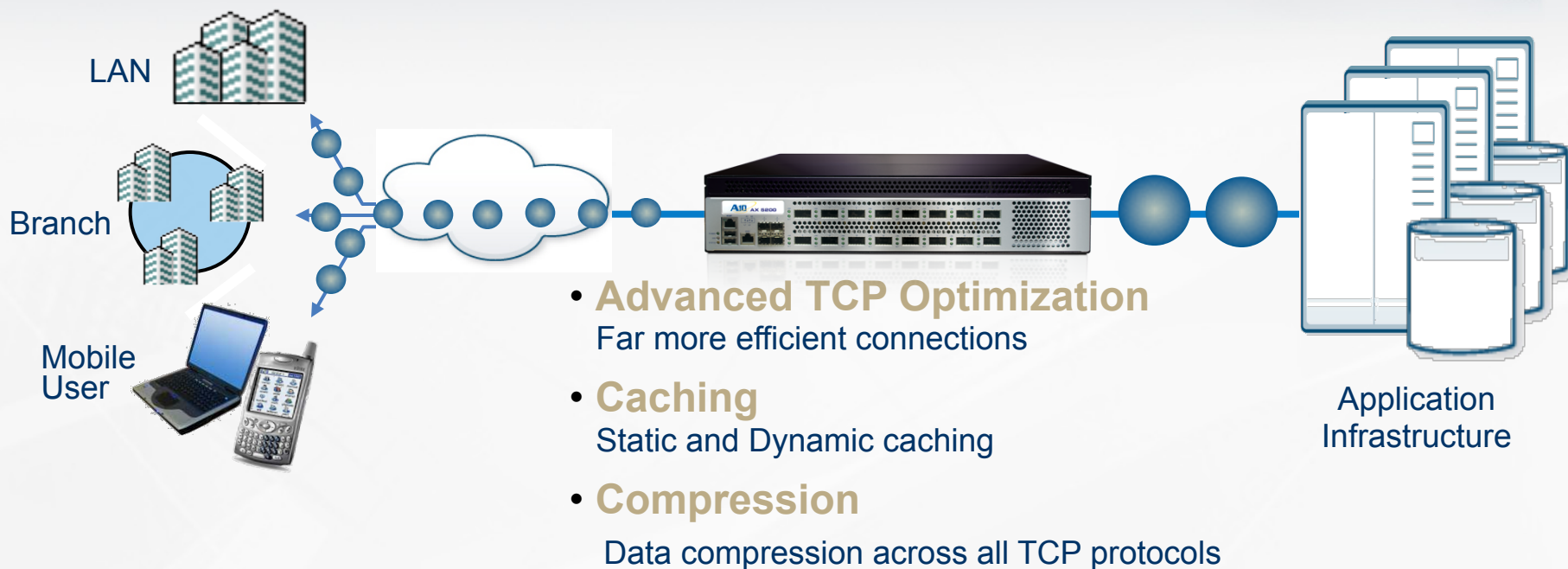




# How We Do It: Step 1

## Increase Performance for End Users

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**Accelerates application delivery by up to 15x or more**



# How We Do It: Step 2

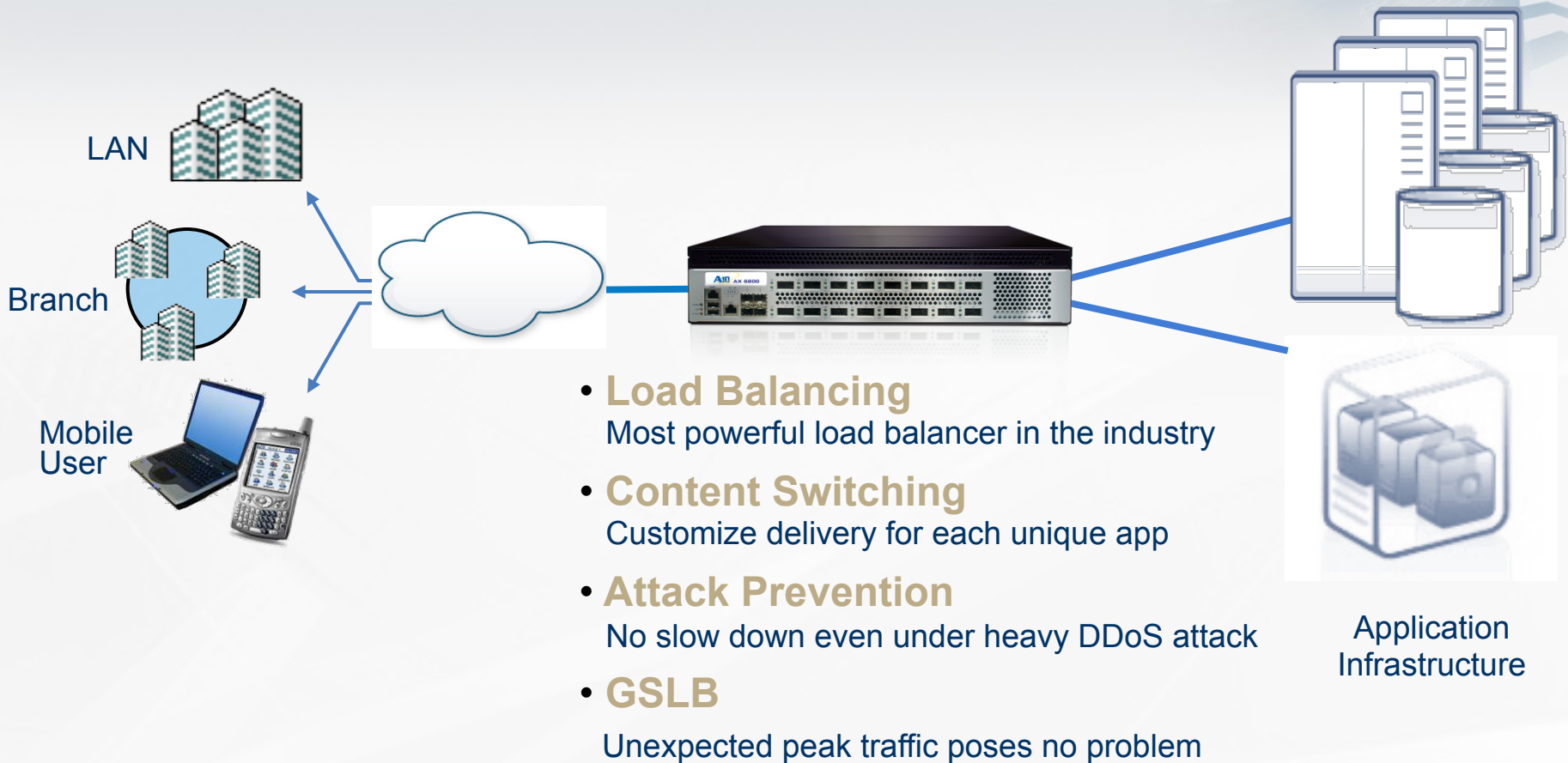
## Reduce Load on Backend Servers



**Supports more users and more applications  
with minimal infrastructure investment**

# How We Do It: Step 3

## Ensure maximum application availability



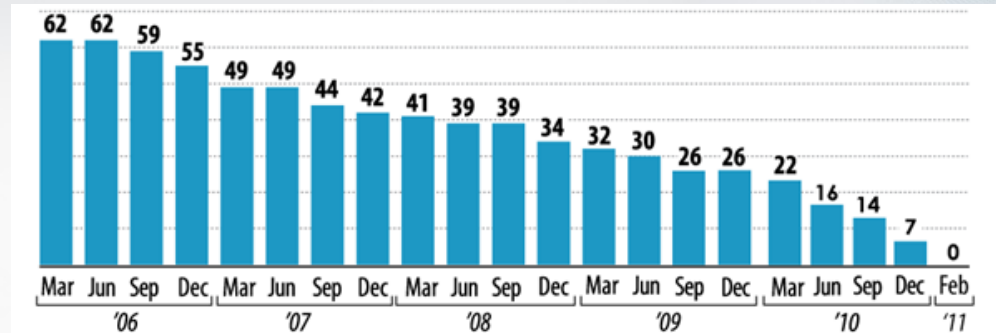
## Guarantees maximum application availability

# What are the benefits of IPv6?

- **IP address abundance**

- More people & devices connected requiring an IP address
- AT&T added 1.6M non-phone wireless device connections in Q1 2011, passes 12M devices

## IPv4/8 Blocks Available



Source: ARIN

- **....but IPv6 also brings**

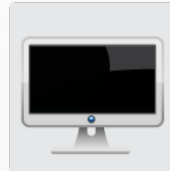
- Efficiency - optimized for routers & other devices to process IPv6
- Simplicity with address auto-configuration

Addresses: IPv4 =  $4 \times 10^9$   
versus IPv6 =  $3 \times 10^{38}$

Cellphone



TV



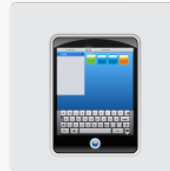
Surveillance Camera



Game Console



eBook



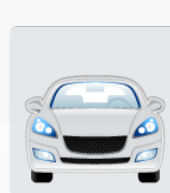
Heart Rate Monitor



Digital Weight Scale



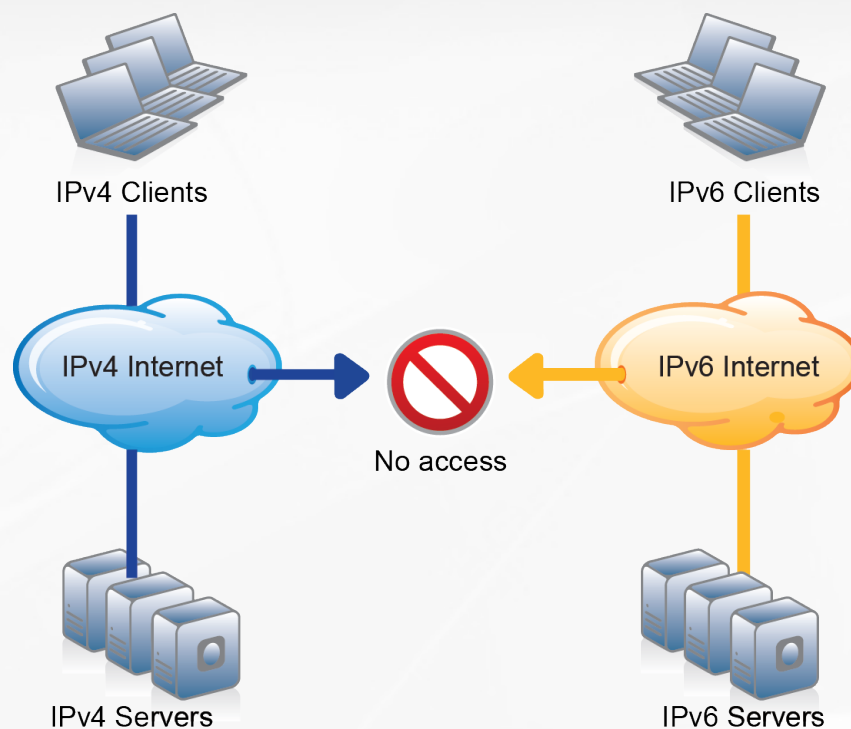
Digital DVD Recorder



Car

# Why IPv6 is not widely adopted today?

- **IPv6 requires a full IPv6 chain of communication**
  - End-devices/Clients, e.g. cell phones, home devices
  - Service Providers, e.g. ISPs, Mobile Network Operators (MNOs)
  - Enterprises/Content Providers, e.g. external websites
- **Challenge**
  - No backward compatibility
  - If one migrates before the other communication is broken!



# IPv6 has become a "hotter" topic

- Service Providers impacted first (Carriers, ISPs, MNOs)
  - Most have been looking at transition solutions in the last 6-36+ months
- Enterprises/Content Providers
  - External: Early deployments are happening, accelerating due to IPv4 depletion
    - Estimated only 0.15% of top 1 million web sites are available via IPv6
      - However some external websites are being enabled now
      - World IPv6 Day, June 8, 2011, was an example of increased attention
        - » <http://isoc.org/wp/worldipv6day/participants/>
- End-devices/Clients
  - IPv6 transition has been in the works for some time
    - E.g. Dual-Stack on Windows Vista & Windows 7, MacOS 10.x, iPhone, Android
  - Many devices with no, or limited, IPv6 support (earlier Windows versions, some game consoles, etc).
- Co-existence is required!



# Ensure maximum application availability : IPv6



- There isn't one...no quick fix...no one solution fits all
- Step-by-step solution
- Future proofed infrastructure
- Video: [http://www.a10networks.com/resources/videos-IPv6\\_Migration.php](http://www.a10networks.com/resources/videos-IPv6_Migration.php)

# Solutions to IPv4 exhaustion

- NAT using Large Scale NAT (LSN also known as CGN)
  - Benefits of LSN
    - Fairness
      - Guaranteed NAT resources via user-quotas
    - Transparency
      - Minimum to no impact on most applications, including P2P applications
      - Still requires ALG for some applications, e.g. FTP, PPTP
  - Techniques using LSN
    - NAT44 – Strong interest with some deployments by MNOs.
      - Does not provide IPv6 access!
    - NAT444 – Strong interest with some deployments by SPs.
      - Does not provide IPv6 access!
    - DS-Lite – Strong interest by SPs.
      - Provides IPv6 access at the same time

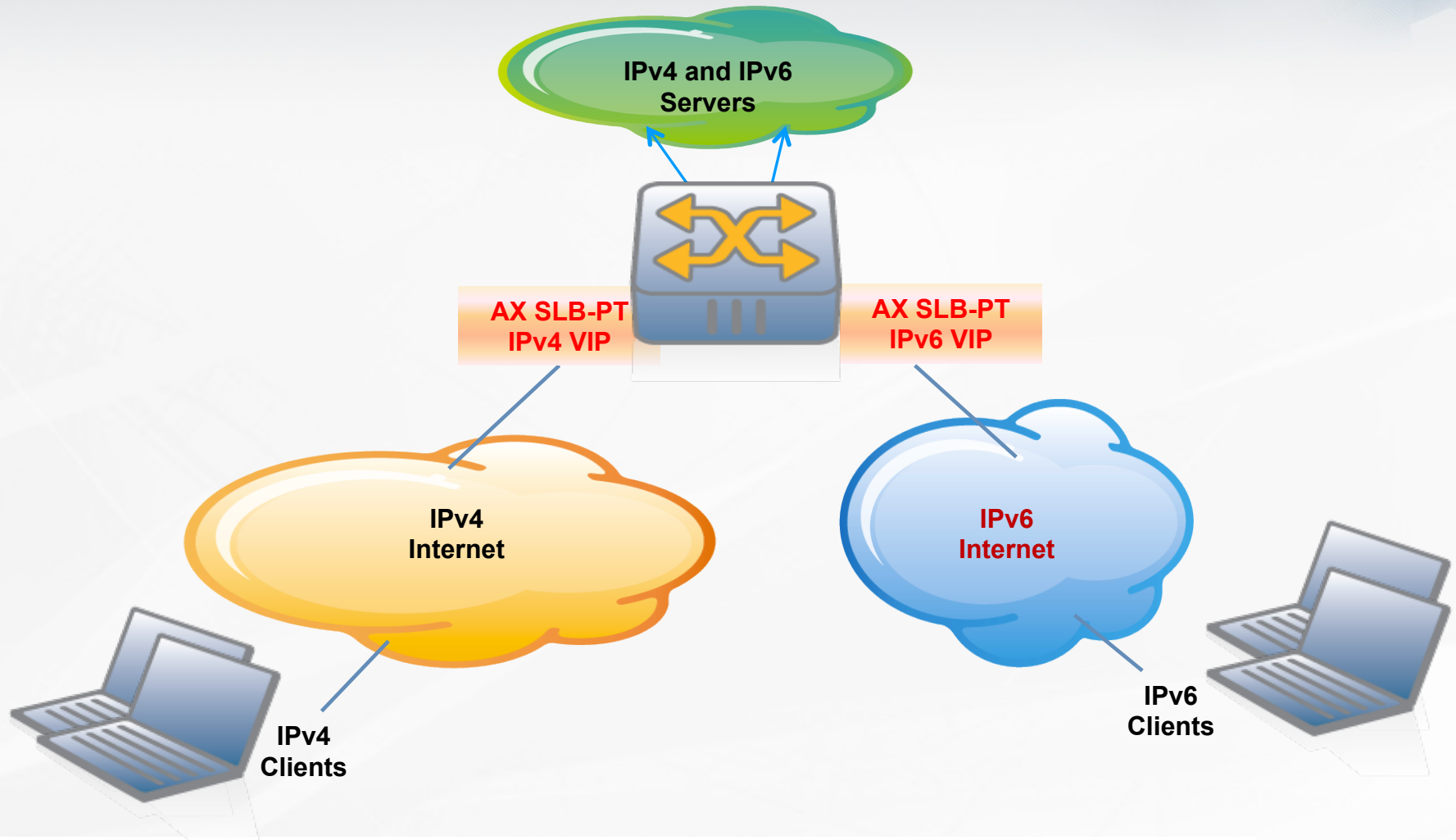
# Solutions for Access to IPv6 Content

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- Dual-Stack IPv4 and IPv6
  - Some interest, deployed by some SPs.
  - Sounds great; why is it not deployed more?
    - Increased OPEX/CAPEX + Requires Dual-Stack up to the CPE
    - Does not solve IPv4 exhaustion (requires NAT44 or NAT444)
- Encapsulation using 6to4 or 4to6
  - Techniques using encapsulation
    - 6rd/6to4/6rd-PT – Some interest, deployed by some SPs.
      - Does not solve IPv4 exhaustion. Must be combined (requires NAT44 or NAT444)
    - DS-Lite – Strong interest by SPs.
      - Does solve IPv4 exhaustion at the same time
- DNS + NAT with Protocol Translation
  - DNS64/NAT64 – Some interest by SPs + MNOs.
    - Does solve IPv4 exhaustion at the same time

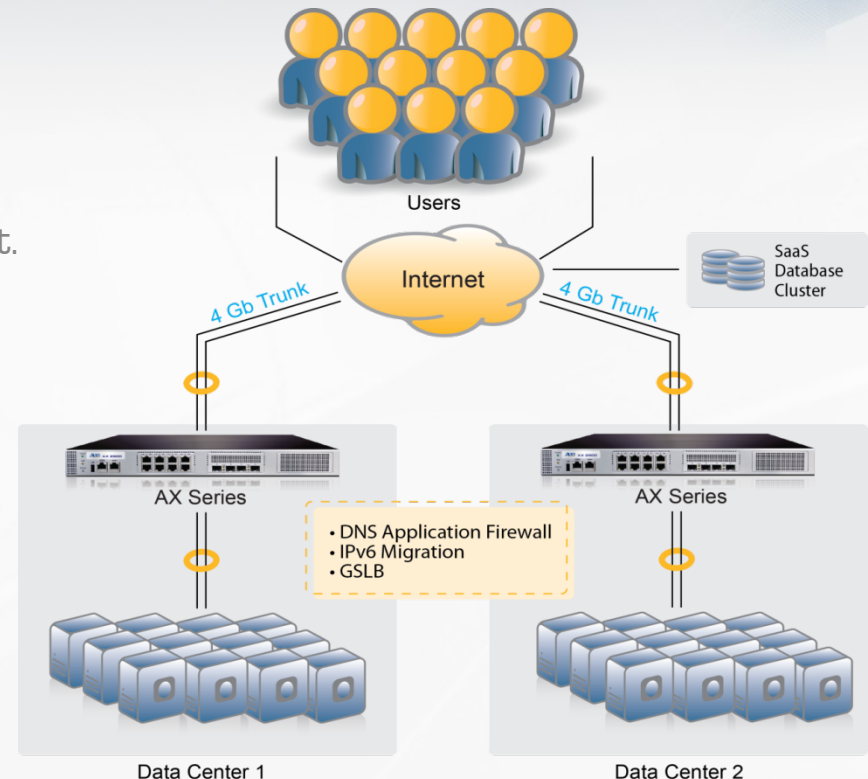
# SLB-PT – Topology

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# Enterprise Customer Example

- Challenges
  - Needed to be reachable on IPv6.
    - Clients from around the world.
    - No control over how clients connect.
  - Applications not IPv6 ready.
- With the AX Series
  - With the use SLB-PT the content is IPv6 reachable.
  - No need to change their infrastructure to IPv6.
    - Infrastructure and Applications
  - Transparent for the end-users.





- Explanation of Analysis environment (Application, Topology, Sessions, etc)
- Application Baseline Performance (Current performance figures)
- Performance improvements which would be realised by implementing AX Series
- Business Impact Analysis - explaining the potential business benefits of the solution



# Why do Customers Select A10?

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- Fastest user experience

Users

- Highest scalability, performance & intelligence for everyday traffic & traffic spikes

External Network

- 64-bit AX Series

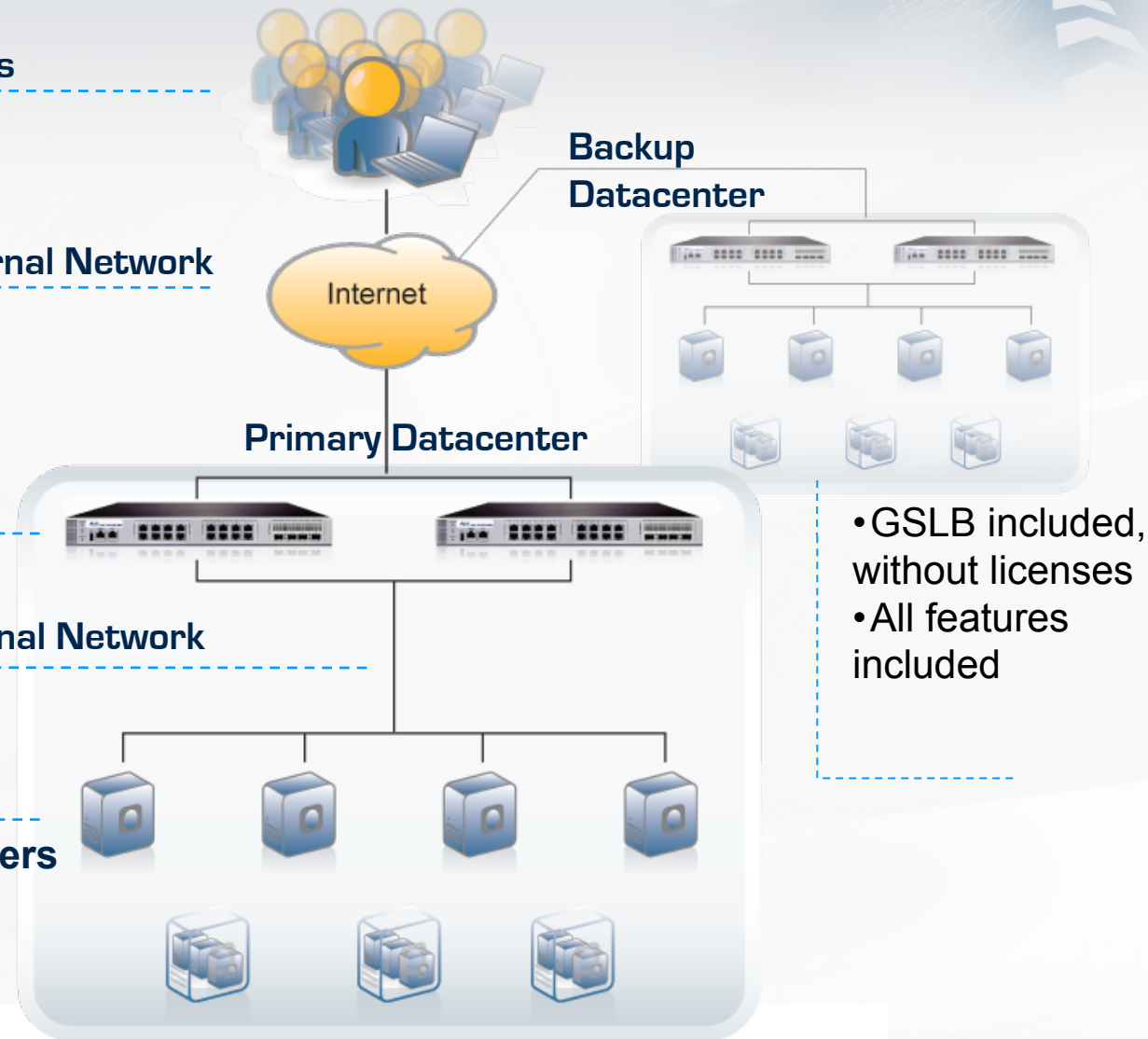
ADC

- Lowest cost per connection/session

Internal Network

- Optimization & efficiency reduces servers = green

Servers



- GSLB included, without licenses
- All features included

# A10 Advantage

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## Faster

- Highest performance by any metric: Layer 4, Layer 7, SSL, Throughput
- Replaces incumbent solutions in all size deals with up to 10X performance and throughput
- Minimal performance degradation when all features are turned on



## Better?

- Industry's most advanced architecture: 2 years ahead of all competitors
- Extensible platform with maximum headroom for growth
- 64-bit, shared memory, multi-core CPU platform
- Disruptive price: All features & max performance are included
- World-class support



- Industry's most energy efficient platforms
- More performance with 1/3 size and 1/6 power versus competing chassis systems
- Highest performance per Watt
- SSD and optimized thermal airflow







Thank You