

# Cisco

## Content Delivery Networks - CDN Enterprise Application & Content Networking System - ACNS

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Cisco Systems. 台灣思科系統股份有限公司

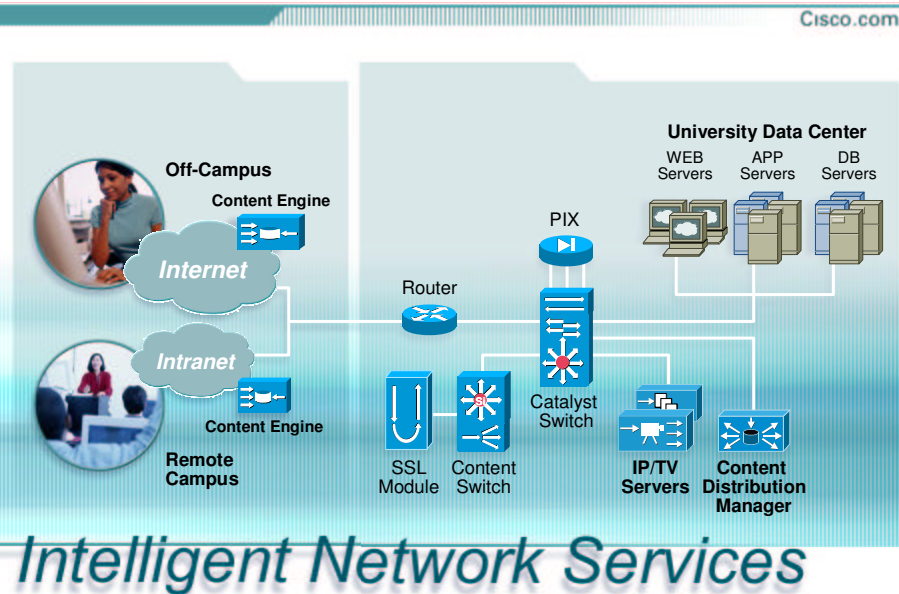
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## What is Cisco ACNS?

*Set of Products to Intelligently Manage, Acquire, Distribute & Deliver  
Web Content and Video*



# Cisco Content Networking Services

*Increasing intelligence WITHIN the Infrastructure*

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## Availability

- Content-aware load balancing
- Global load balancing
- E-transaction assurance
- Mobile content delivery
- Adaptive session redundancy
- HSRP
- IP routing/mobility
- EtherChannel
- PortFast/UplinkFast/Backbone Fast
- Failover
- 802.1s, 802.1w

## Scalability

- Streaming—splitting/re-Multicasting
- Caching—transparent, RPC
- Content prioritization/ service personalization
- Content transformation
- Flash crowd protection
- Multicast content distribution
- Content-based packet-coloring
- IP Multicast
- QoS
- WCCPv2
- MPLS

## Security

- Firewall, SSL, VPN load balancing
- SSL acceleration
- Content filtering
- Virus control
- Denial of service protection
- Domain-based admin
- Firewall and filtering
- Intrusion detection
- VPN & VLAN
- AAA services
- 802.1x, Identity Services

## Management

- Device, element management
- Programmatic interaction

- Network AND services monitoring and reporting

- Service activation
- Dynamic traffic control

# Fort Hays State University Extends Curriculum Reach

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## Challenge:

Use network to deliver on- and off-campus learning

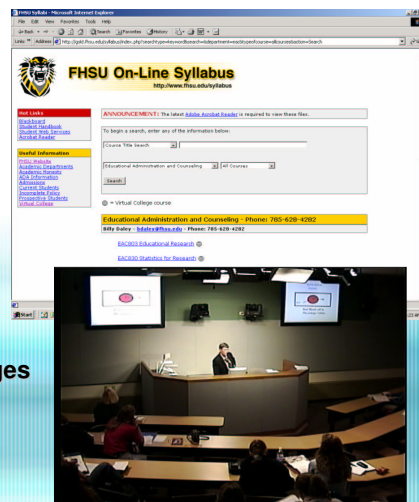
- Elementary Education, Special Education
- School Planning, etc.
- Math
- Nursing
- General courses

## Solution:

- CDN for high-quality video
- IP/TV live courses to 6 Community Colleges

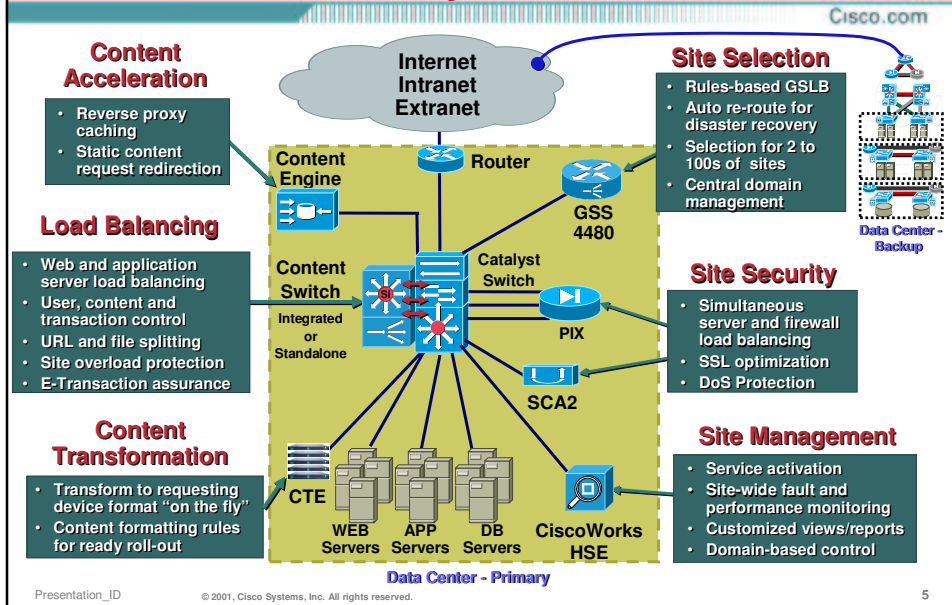
## Results:

- Remote students have access to same course content



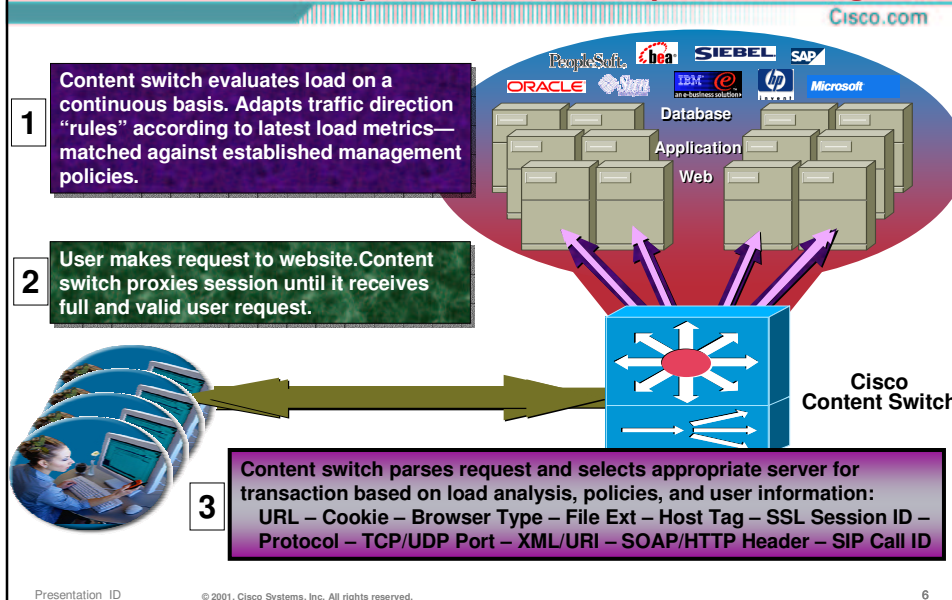
# Top Data Center “Applications”

*You decide which fits your needs*



# Directing Traffic in the Server Complex

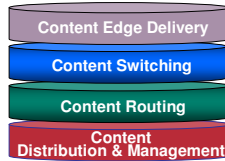
*Evaluate Load, Analyze Requests, Complete Exchange*



# Content Networking Building Blocks

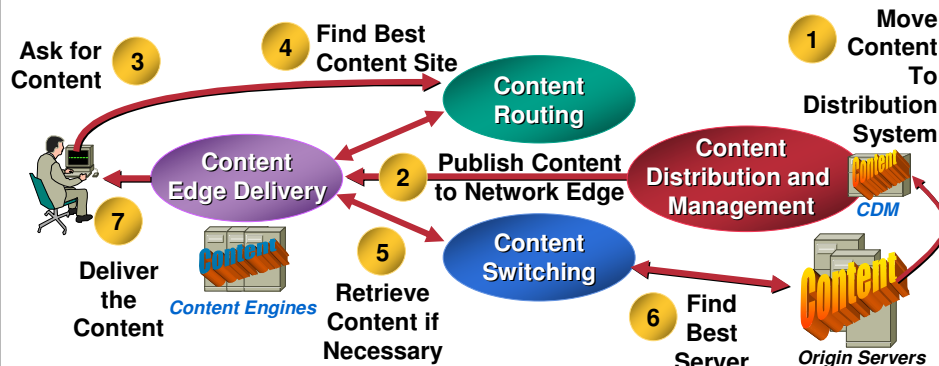
*Solve Problems Where and When You Need to!*

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## Content Edge Delivery

- Can I deliver the requested content from my local storage?
- Is my current copy of this content **FRESH**?
- If not, go to the origin server and **REFRESH** it!
- Is there **QoS INFO** I should use or alter for these packets?
- Do I have **sufficient processing cycles** to handle more requests? If not, tell everyone!



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# Site Selection -- Multi-Site Load Balancing

*Service Continuance As Loads Change, As Policies Dictate*

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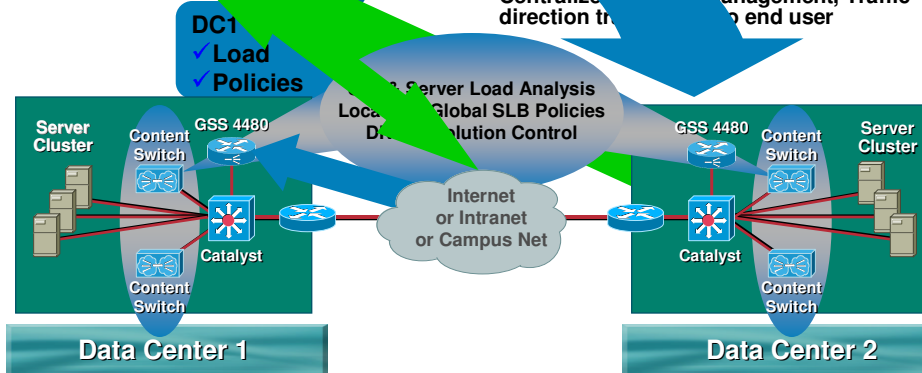
Branch Worker or Online Customer



## Problem

- Users coming from many regions
- Apps/Data available from multiple locations
- Back-up site resources underutilized

- Direct user to best site at time of request based on local or policies
- Centralized management, Traffic direction to end user



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# Protecting User Transactions, Accelerating SSL Traffic

## Problem

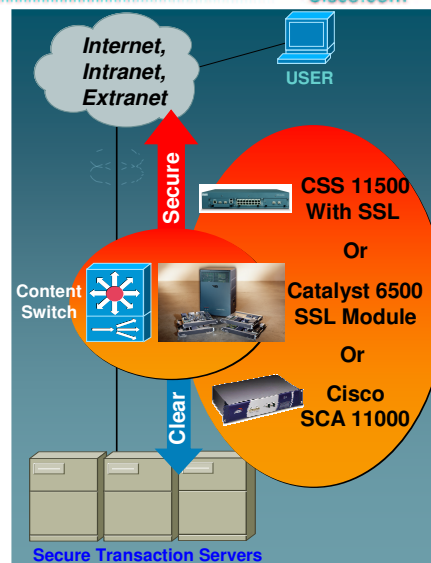
- Server SSL processing slows transaction times, disables traffic management capabilities, and complicates security management

## Solution

- Offload and accelerate SSL processing via dedicated appliance or switch module
- Load balance secured traffic

## Benefit

- Improves transaction and server performance and eliminates SSL as driver for additional server investment
- Simplifies certificate management
- Integrated content switching provides packet processing, transaction assurance, and traffic control



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# Web Application Acceleration

Mission-critical web applications, including intranet portals, consume WAN bandwidth. For high productivity, HTTP and streaming content must be delivered FAST.

## Solution: HTTP caching, streaming media proxies

- Accelerate Siebel, intranet portals and other mission-critical applications
- Improve end user experience and productivity
- Use the most advanced implementation of WCCP v2 for ease of management



## Nestle, S.A. –

*Caching to eliminate web latencies. Nestle projects savings up to 40% on WAN bandwidth, increase end user productivity and improved Nestle customer satisfaction*

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## ACNS/CE: Proxy Caching Engine

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- **Secure Internal Network from the Outside**  
Hides internal network with CE's IP Address  
Access Control
- **Transparent (WCCP) or Browser Proxy Interception of Cacheable Protocols**  
HTTP, FTP over HTTP, RTSP, MMS, HTTPS, native FTP
- **Store and serve authorized, scrubbed and filtered content to authorized users and protect from inappropriate use**
- **Web Application Usage Policy Enforcement per user:**
  - User Authentication:** RADIUS, TACACS+, NTLM, LDAP, Active Directory
  - Authorization:** Apply Rules, ACLs, URL Filtering and BW usage policy based on users and group membership.
  - Accounting:** Provide extensive logging and auditing capabilities

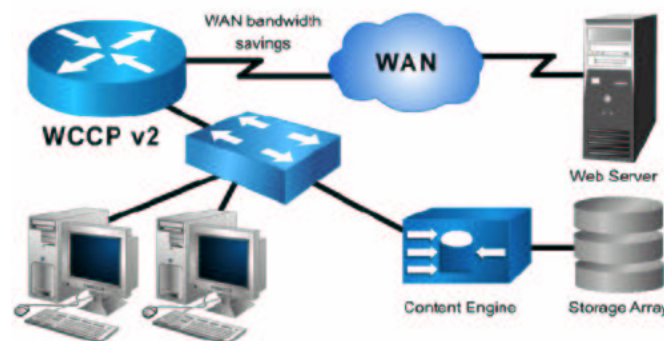
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## Web Caching Components

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Frequently requested Web Pages are stored locally for later retrieval.  
Allowing additional bandwidth for existing and/or new applications  
such as VOIP and IP Telephony.

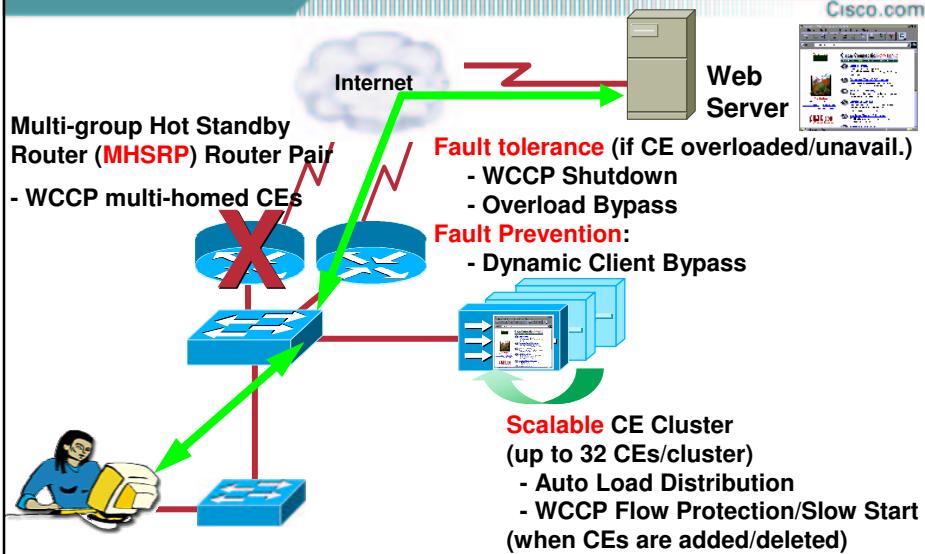
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## Edge Intercept with ACNS Advanced WCCP V2



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## Cisco Content Security Solutions

Internet Proxy Cache  
URL filtering for Employee Internet Management  
Web Content Anti Virus Protection

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## The Problem

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As companies extend Web applications and Internet access to employees, they need to manage what the Internet is used for and potential threats from “untrusted” content.

### Did you know...

- 70% of porn is downloaded between 9am and 5pm - [SexTracker](#)
- The number of hacking sites grew 45% in the past year - [Websense](#)
- 5 billion music files were downloaded from P2P networks last year - [Yankee Group](#)
- 1 in 3 companies have detected spyware on their network - [Websense UK Survey](#)
- 80% of network security managers claim their biggest security threat comes from their own employees - [Gartner](#)

## What is Content Security?

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### According to IDC ...

#### Secure Content Management Market Definition

“SCM reflects corporate customers’ need for policy-based Internet management tools that manage Web content, messaging security, virus protection, and downloadable applications execution. SCM is a superset of three specific product areas:

**Antivirus software** identifies and eliminates harmful software and macros. Antivirus software scans hard drives, email attachments, floppy disks, Web pages and other types of electronic traffic.

**Web Filtering software** is used to screen and exclude for access or availability Web pages that are deemed objectionable or not business related.

**Messaging security software** is used to screen messaging applications such as email, instant messaging, SMS, and peer-to-peer for spam or other objectionable content.”

IDC Worldwide Secure Content Management Forecast 2002-2007, July '03

**Secure Content Management market growing 19% annually, to \$6.4B in 2007**



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## Internet



## International Drug Manufacturer: Internet Proxy Cache with URL Filtering

- Enhanced Security - every Internet connection goes through proxy to protect PCs**

**URL blocking, Internet logging for inappropriate surfing and to detect and block worms / viruses**

**Improved bandwidth savings and response time:**

**47% objects delivered by CE representing 20% total Internet traffic;**

**Objects delivered 1 to 3 seconds faster**

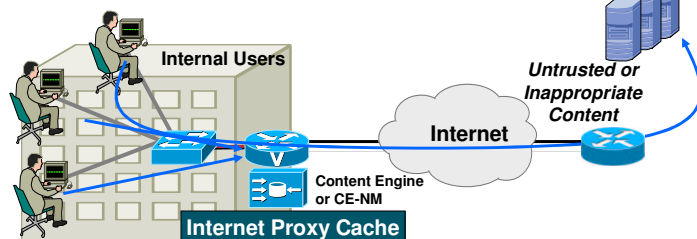
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**Web Content Server**



- Internet traffic logging and reporting
- Internet and Application Access Control
- Internet and Application Use Policy enforcement
- URL Filtering Server
- Anti-Virus Gateway (ICAP) to scan, clean and cache virus-free Web content
- SSL termination for caching encrypted content and applying policy to HTTPS content requests

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# Employee Internet Management (EIM)

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## Employee Internet Management (EIM)

Internet Security solutions that enable organizations to leverage and control their investments in Internet and related information technology (IT). URL filtering is one of the most common EIM applications with businesses, organizations and schools today.

### Benefits

Conserve network bandwidth and network storage



Limit legal liability

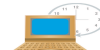


Reduce Security Risks



Enforce acceptable Internet and application use policies

Improve employee productivity



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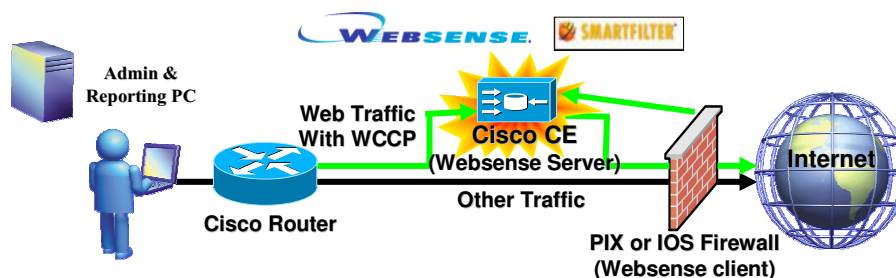
# ACNS/CE: High Performance URL Filtering

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- CE includes Websense v5.0 embedded and SmartFilter v3.2 Filtering server on-box
- Cisco resells Websense and SmartFilter Database Subscription services and CEs

### Benefits:

- Turnkey Appliance and Router-integrated Network Module Solution:
  - Reduce Number of Devices and Total Cost of Ownership
  - Ease Deployment and Management
- Employee Internet Management:
  - Permit/Deny/Coach Traffic, Tracks and Reports on usage



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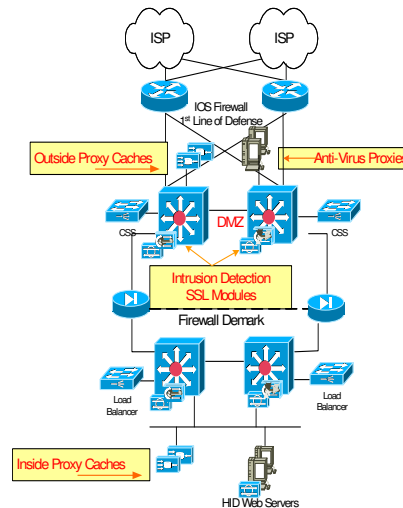
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## Web Content Anti-Virus Protection

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- CE works with ICAP v1.0 Servers (Trend Micro, Symantec, Finjan) off-box
- CE stores cleansed content and reduces WAN access:
  - ICAP: Internet Content Adaptation Protocol
  - CE Rules to forward (authenticated) client requests to Anti-Virus Servers
  - CE Rules to only pass certain traffic (e.g. file types) to enhance performance of Anti-Virus Servers
  - ICAP to load balance and failover between Anti-Virus Servers
- WCCP for transparent redirection and CE failover
- In addition, use ACNS to intelligently distribute Virus Updates to Client desktops



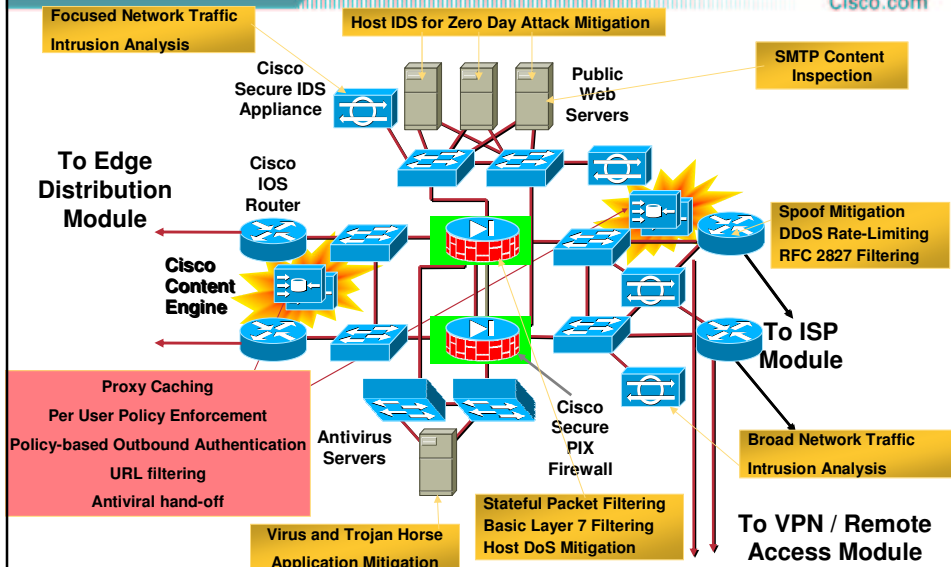
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## SAFE Architecture and Content Security

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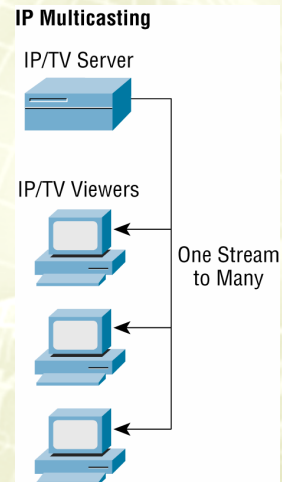
## Live Streaming Application

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### What is IP/TV?

- Live multicast component of a content network
- Turnkey solution for enterprise streaming
- Based on standards

IP Multicast & SSM for broadcasting  
RTP provides a common transport  
RTSP enables client/server control  
RTCP enables usage/quality logging  
RSVP for resource reservation QoS  
SDP (HTTP/SAP) for Program Guide



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## Cisco IP/TV Product Family

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- **Complete streaming video solution**
- **Focused on IP multicast**
- **Strong for “Live Events”**
  - Live Encoding & Broadcast
  - Scheduled Re-broadcast
  - Synchronized Presentations
  - Question Feedback
  - Quality Monitoring & Usage Feedback

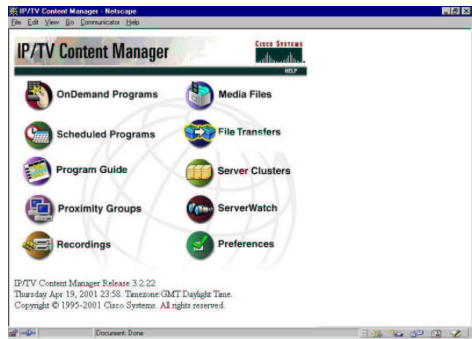
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## Cisco IP/TV 3412 Control Server

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- Centrally manages entire IP/TV system
- Enables easy scheduling of live and repeat showings
- Automatically generates Program Listing

Easy-to-use, Web-based administration tool

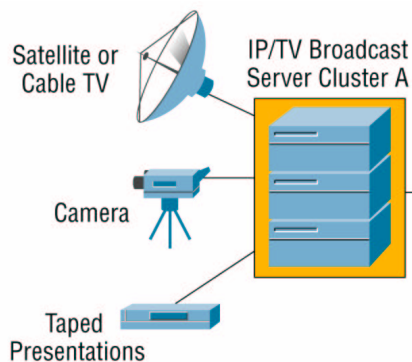
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## Cisco IP/TV Broadcast Servers

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- Capture and broadcast real-time and pre-recorded content
- Deliver content from a variety of sources:
  - Cameras, satellite and cable feeds, DVDs
  - AVI, MPEG digital files
- Offer range of video and audio formats, including:
  - MPEG-1, MPEG-2, MPEG-4
  - MP3, AAC, G.711

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## Cisco IP/TV or QuickTime Viewer

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- **Browser-based Plug-In**  
Either Cisco IP/TV or QuickTime
- **Embeds into Web Page**  
Can author HTML on page
- **Launches when user clicks URL on Web-based Program Listing**
- **Microsoft IE & Netscape browsers**



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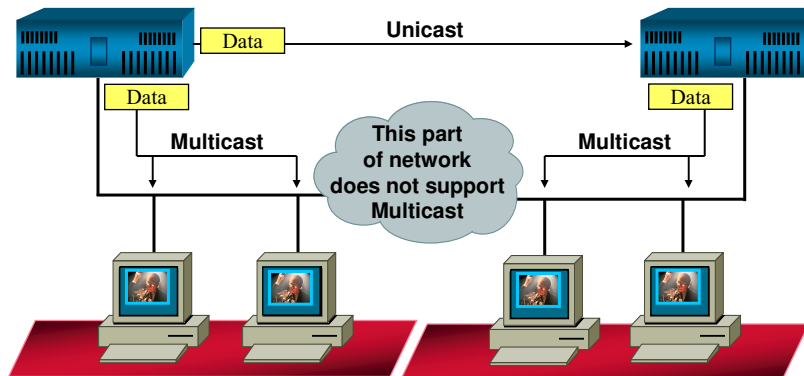
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## SmallCast: Addressing Mixed Topologies

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- **Addresses combined multicast and unicast environments**
- **Tunnels a multicast program through a point-to-point logical connection between two IP/TV Servers**



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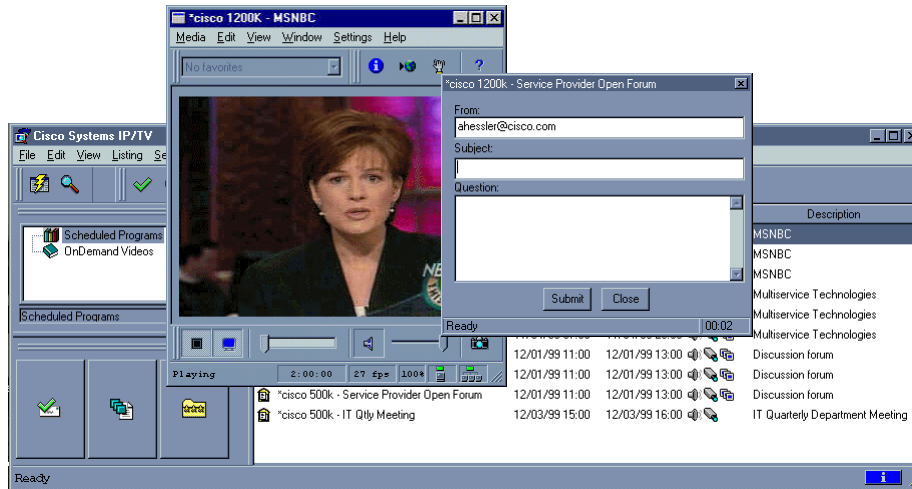
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## CiscoTV – Live, High-Quality Streaming

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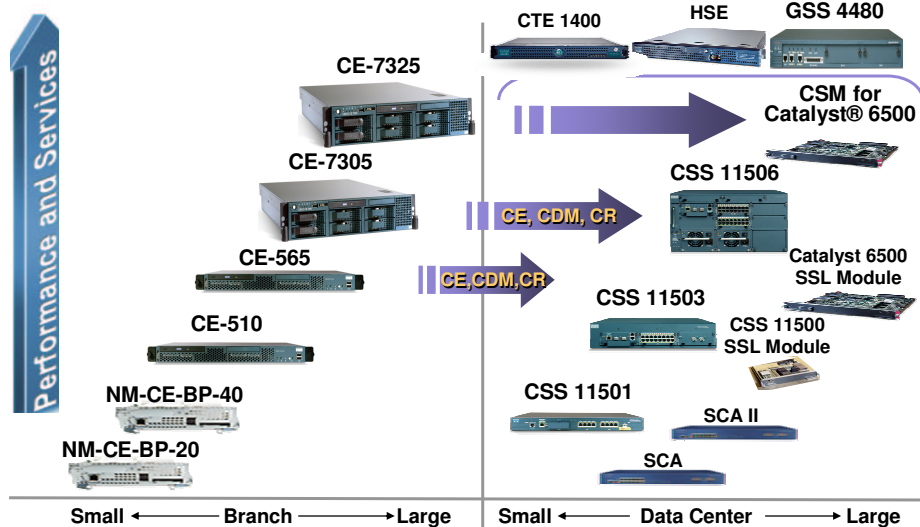
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## Cisco Content Networking Portfolio

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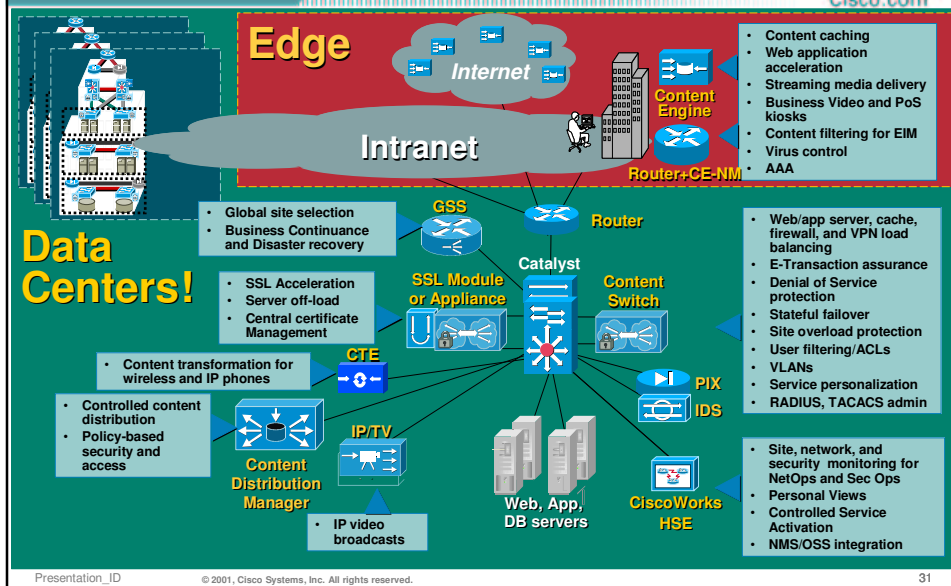
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# Content Networking Systems & Services

## Enable New Services... As needed!!!

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