Content Delivery Management
A solution brief from HP
The content delivery services market is expected to grow to three billion dollars by 2006, according to NetEdge Research Group. As traditional network and service providers (NSPs) and hosting service providers (HSPs) develop a greater understanding of the evolution of their market, it has become apparent that offering content networking services is a natural extension of their core competencies. In order to capitalize on the lucrative content delivery services market, NSPs and HSPs are expanding their offerings with rich-media content related services. By extending core hosting services to include intelligent distribution and management of all types of content including data, software updates and audio/video streams, service providers can drive profitable new revenue streams.

All service providers have concerns about network performance, operational efficiency and fulfillment of service level objectives. The Content Delivery Network (CDN) gives service providers the tools to deliver complete content delivery management, so they can manage the network and proactively monitor and manage the primary elements of the CDN. The CDN allows NSPs to aggregate content, schedule live and on-demand content distribution, prepopulate edge devices with frequently requested Web content and manage final delivery to an end-user device. The primary elements of a CDN are content distribution servers, streaming servers and edge devices for content delivery and load balancing.

HP's Content Delivery Management solution enables service providers to quickly and confidently monitor and manage the various elements of the CDN and optimize the CDN for maximum efficiency while reducing the operational costs associated with delivering rich-media services.

HP Content Delivery Management (CDM)
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HP CDM solution overview
Rich-media solutions such as content distribution and delivery services require an understanding of both the network and the actual content. HP combines its in-depth network knowledge with a focus on application services such as caching, streaming and content distribution. HP not only provides solutions to coordinate these applications into revenue-generating services, but the tools to manage and monitor them. To complete the offering, HP consulting services include business planning, methodology development, technology, system integration, and implementation services to integrate CDM into existing service systems.

CDM provides a single integrated view of the delivery network and its related services. It is designed to help CDN service providers effectively predict, isolate, diagnose and troubleshoot problems. CDM helps service providers to easily demonstrate value and effectiveness to clients and end-users alike. With CDM, service providers can anticipate and manage capacity shortfalls, report on service level agreements, and drive down the total cost of ownership for the content delivery service.

HP's CDM solution is the first proactive management solution for content delivery networks. By leveraging market leading Integrated Service Management and service assurance solutions, which include HP OpenView products, such as the HP OpenView Operations framework and console, CDN network operation centers (NOCs) can closely monitor the CDN service infrastructure. This solution enables providers to gain control of both the core and edge CDN infrastructure from a single operator console. HP OpenView Operations (OVO) provides the capabilities to manage the various components and applications through Castify's Smart Plug-ins (SPIs). When integrated with the CDM, these SPIs provide an end-to-end management solution that can proactively manage the entire CDN environment, including streaming servers, edge devices, and databases that hold CDN vendor data and more.
This solution has been developed in partnership with Castify Networks. Castify’s content networking solutions offer an end-to-end platform covering intelligent content routing, scalable content distribution and delivery, and conditional access. Castify supports all forms of content, including file transfer and streaming, and any type of environment covering unicast and multicast links based on either terrestrial or satellite networks. CDM supports the Castify Broadcast Network components including Media Manager, Direct Beam, Media Wave and Network Manager. HP Content Delivery Management improves operational productivity and ensures the quality of content delivery services while easing the integration and delivery of these new rich-media services. Ultimately, service providers will gain the proactive control needed for the current infrastructure and the tools required to plan for the future.

**Key solution components**

**Software:**
- HP OpenView Operations 7.01
- HP Openview service Reporter 3.5
- HP OpenView Internet Services 4.5
- Castify CBN Manager 4.0.0028

**Minimum hardware requirements:**
- One HP-UX server
- Three Windows 2000 servers

**Benefits:**
- Improves productivity of CDN administrator
- Reduces operational costs associated with rich-media services
- Validates fulfillment of SLA commitments
- Optimizes CDN for maximum efficiency
- Ease of integration and delivery by HPS C&I
- Lowers total cost of ownership for content delivery services

**Features:**
- **One console access:** CDM enables access to all CDN management functionality. It proactively monitors the environment and alerts the NOC operator of any fault or change in the configuration, as well as provides performance analysis and reports. The NOC operator can manage the CDN infrastructure at the service level and the infrastructure level from a single console.
- **Performance management:** include software probes to actively monitor Windows Media and Real Media streams. The CDM integration module to HP OpenView Internet Services provides a mechanism to automatically configure the streaming probes whenever new edge devices are added to the network. These software probes measure the performance of the streaming servers by periodically requesting the desired media content from these edge devices. The data collected by these probes is used to generate reports and databases that can be accessed using a Web browser.

In addition, the Castify Smart Plug-in (SPI) collects performance statistics for the Castify NOC about the NOC and the C-Routers in the network. This information is stored in the measure database and used to generate periodic reports through HP OpenView Service Reporter.
• Fault management: HP OpenView Operations is integrated with Castify Broadcast Network (CBN) to retrieve and convert the CBN messages and display them on the fault management window of HP OpenView Operations.

• Service navigator: The discovery of CDN devices is enabled by HP OpenView Service Navigator and CBN. This module dynamically retrieves the CBN topology information from the CBN database and forwards it to the CDN management server. Using this, the NOC operators can monitor the network at the service level rather than the core server level, which enables the operator to execute a root cause analysis of a problem, understand the services impacted, and take corrective action.

• Report generation: The report generation feature enables offline reporting to analyze current trends, optimize performance, and plan for future service expansion. Content reports have been provided through the integration of HP OpenView products and Castify CBN. Reports are generated on utilization and access. Available reports can be categorized as follows:
  - Content reports: provide information relative to content popularity, usage and viewership. These reports are generated on-demand daily, weekly or monthly as specified by the user.
  - NOC reports: targeted for NOC operations to provide information on system utilization and performance at the system group level, such as C-NOC or C-POP. These are scheduled reports and can be retrieved and viewed as required for daily, weekly or monthly periods. Reports that are currently available include:
    - System Availability report
    - CDN Errors Static report
    - CPU Utilization report
    - Memory Utilization report
    - Bandwidth Utilization report
  - Standalone Media Server reports: targeted for NOC operations to provide information on standalone media servers, such as Windows Media Servers or Real Networks Server. These are scheduled reports and can be retrieved and viewed as required for daily, weekly or monthly periods. The reports that are currently available include:
    - Content Viewers report
    - HTTP Streams report
    - Bandwidth utilization report

Partners
Castify Networks develops and markets managed delivery software that allows the establishment of large-scale content distribution platforms. Castify’s content networking technology has been designed and developed to enable any type of network including Internet, intranet, terrestrial or satellite, to become a platform for scalable distribution of any type of data including text, image, Web, audio or video. Castify solutions support a variety of applications such as video-on-demand services in the context of the residential broadband or applications related to an enterprise’s e-learning, corporate communication, software distribution, or point-of-sales applications. For more information, visit www.castify.com.

HP advantage
Communications solutions are highly complex, and service providers must deliver even more innovative services to the market while keeping customers loyal and insulated from the complexities behind the services. In order to achieve this, service providers need strategic partners who can do more. HP offers a range of targeted, seamless solutions, integrated with partners, delivered quickly and efficiently. HP systems and solutions are open and flexible, empowering customers to customize or create value-added services. Our service capabilities provide the expertise to develop, integrate, test, install and support the most complex service launches. This one-stop shopping approach lets service providers focus on their customers—not their suppliers.

HP focuses more than 25 years of telecommunications expertise into a powerful integrated team, the Network Service Provider Business Unit (NSPBU). The NSPBU, along with 500 valued solutions partners, assists the world’s top 200 service and equipment providers, and meets the voice and data needs of hundreds of millions of wireless and wireline subscribers.

With solutions, technologies and services arrayed across servers, storage, network infrastructure, network services, operations and business support, mobile- and rich-media solutions, and end-user access, HP is a major player that is leading change in the service provider and entertainment industry.

For more information, go to http://www.hp.com/communications