



# Cloud Services Forum (CSF) Overview

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Cloud Services Forum Chair  
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## Brief CSF Recap

- CSF launched mid-February 2011.
- Started meeting weekly on March 23 to address aggressive deliverable dates.
  - High-interest, with meeting participation averaging 20 companies.
- Met face to face the first week in May for 4 days, and will continue aggressive virtual meeting schedule through the end of May 2011.
- Member companies include:
  - ALU, AT&T, BT, CenturyLink, Cisco, Ericsson, Huawei, Intel, Juniper, Microsoft, Neustar, NSN, Symmetricom, Verizon and ZTE.
  - Recruiting companies who have participated during the initial free trial period.
- First use case – CDN-I.
  - Scope of CSF work narrowed to focus on CDN-I to complete work in short time interval.



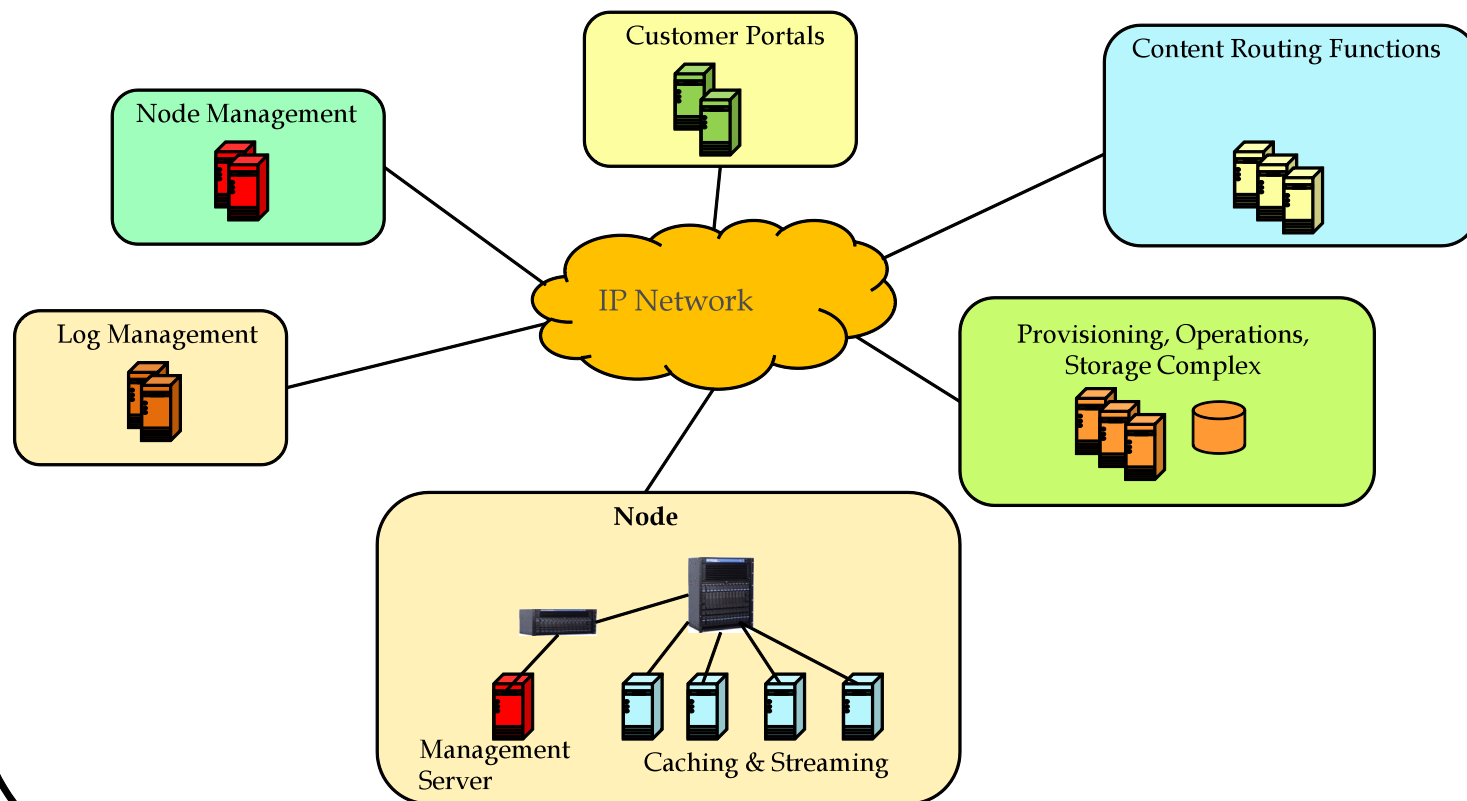
## Business Drivers

- AT&T launched CDN-I work – Including business motivation, proposed set of deliverables, and next steps.
- Key motivators:
  - Regional CDNs are well positioned for interconnection to become a global CDN. This is a valuable cloud services asset for CSPs.
  - Redirecting download requests for frequently requested content to lower cost (geographic proximity, least cost routing, etc.) CDN caches improve network efficiency.
  - Addressing content requests in the local access network reduces the impact on core networks and peering points.

## CDN-I: Initial Work Steps

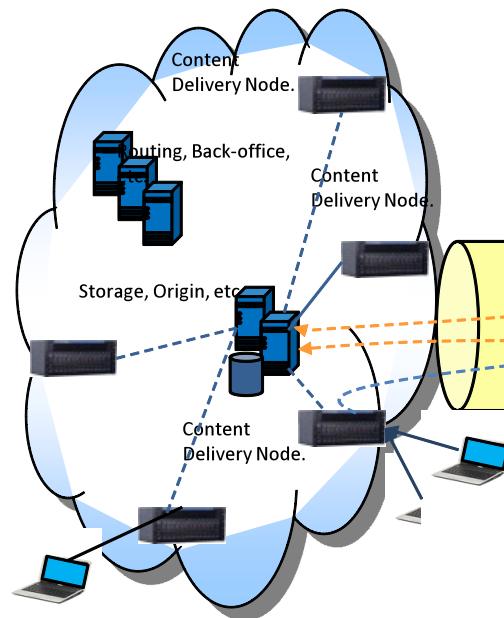
- Common understanding of CDN-I developed:
  - Multiple types of content delivery:
    - “Simple” (e.g., off-peak software download);
    - “Complex” (e.g., Video on Demand).
  - Delivery mechanisms (cached versus multicast);
  - Peer-to-peer interconnection versus multiple peers/federation.
- Key areas of focus and issues established:
  - End-to-end use cases and requirements;
  - Billing/charging issues (targeted for 4Q11);
  - Reference architecture/message exchange framework.

# High Level Functions in a CDN

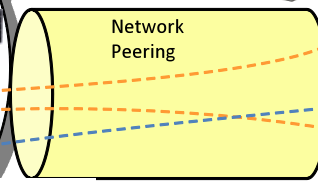
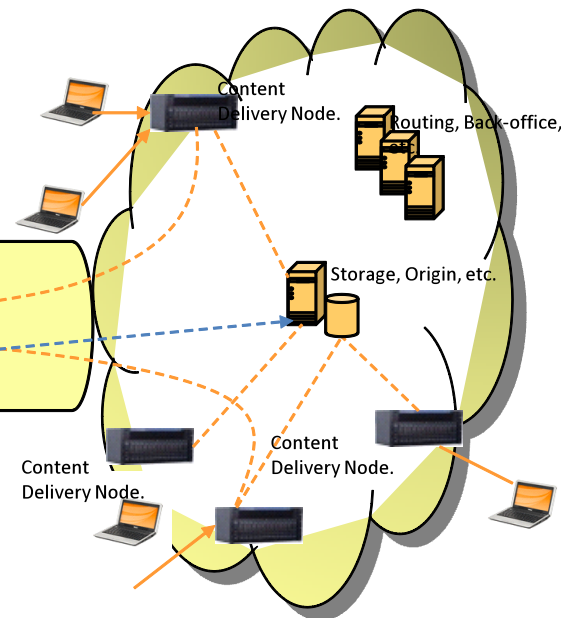


## Inter-connected CDN Delivery Model Between Carriers (Cache based distribution)

CDN Provider-1 Network & CDN



CDN Provider-2 Network & CDN



**Note: only data path is shown for clarity.  
Request & back-office path not shown.**

— User Content Data Path  
- - - Node Cache Fill Data Path

March 8, 2011

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# Use Case Areas

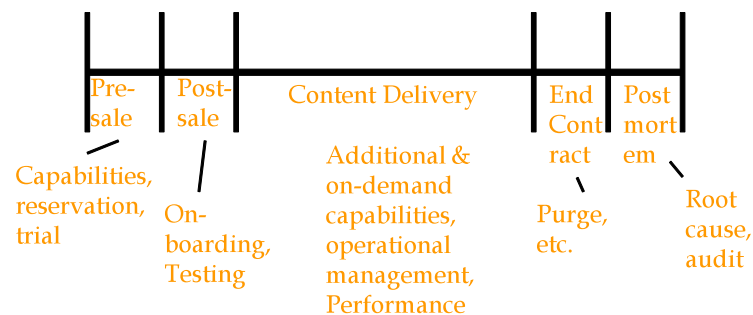
Content Types and characteristics

Off-peak – Software download  
Peak & on-demand – Web, LFD, VOD, etc  
Real-time – Events

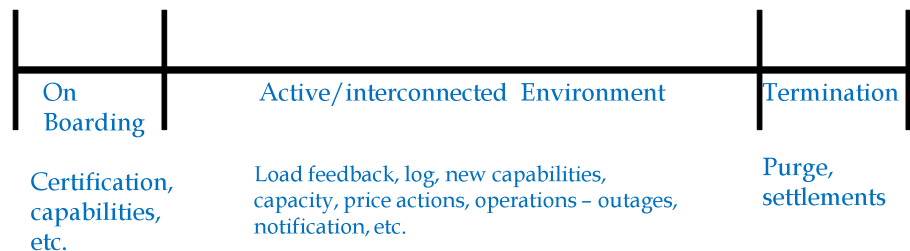
Delivery types & protocols

Unicast, Multicast: different protocols

Customer Life-cycle

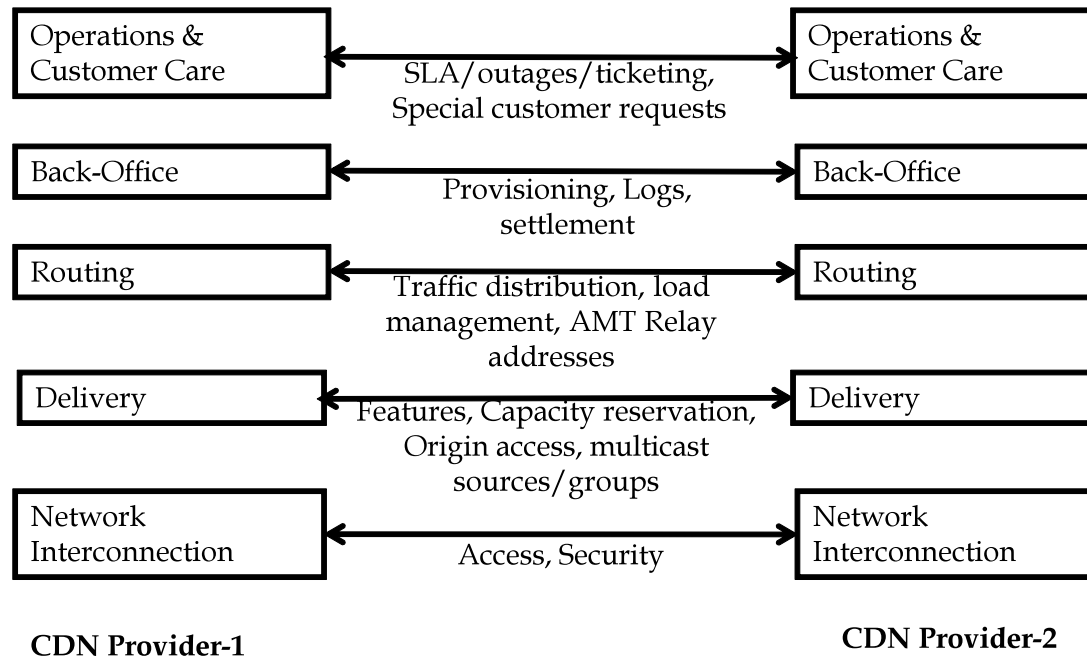


Peer-Peer Interconnection Life-cycle



## Inter-connected CDN Model Interface Domains

**Bi-Lateral Agreement Between Two Carrier CDNs.**  
Assume that each carrier peers with another carrier at the CDN Level





## CSF Work Progressed at May Meeting

- CSF met in conjunction with the ATIS Annual Meeting of the Committees (AMOC) May 2-5, 2011.
- Significant work effort to develop CDN-I requirements against use cases.
- Joint meetings held to discuss synergies with other ATIS Committees:
  - IPTV Interoperability Forum (IIF)
    - Content delivery
    - CDN interconnection (with IIF Architecture Committee)
  - Packet Technologies and Systems Committee (PTSC)
    - identity management
- Approved liaisons to IETF and ITU-T SG 13 regarding CSF priorities and timelines.



# Open Priorities

- CDN Interconnect
- Inter-carrier telepresence
- Virtual private network
- Cloud services checklist (New)
  - Objective is to develop an “on-boarding” checklist to ensure consistency and reliability of cloud interconnection; similar to PCI checklist for Financial industry.
  - Represents a CIO Council initiative in collaboration with CSF.
- Cloud services framework (New)
  - Develop or adopt an extendable reference framework for a cloud-based system.



## In Summary

- Significant progress has been made to develop requirements for the identified set of use cases.
- Weekly meetings to continue through May in order to meet target delivery of CDN-I requirements by month's end.
- More active engagement needed – both from service providers and vendors.
- It is critical to continue the pace of work to meet the deliverable associated with CDN-I, Release 1.
- After the requirements document is complete, the CSF will assess existing protocols for applicability to the requirements. The objective is to overlay the CDN-I data requirements over an existing protocol for the implementation architecture.



# QUESTIONS?

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