



Open Content Aware Networks

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CDN World Summit
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OCEAN

Project Consortium and Timeline

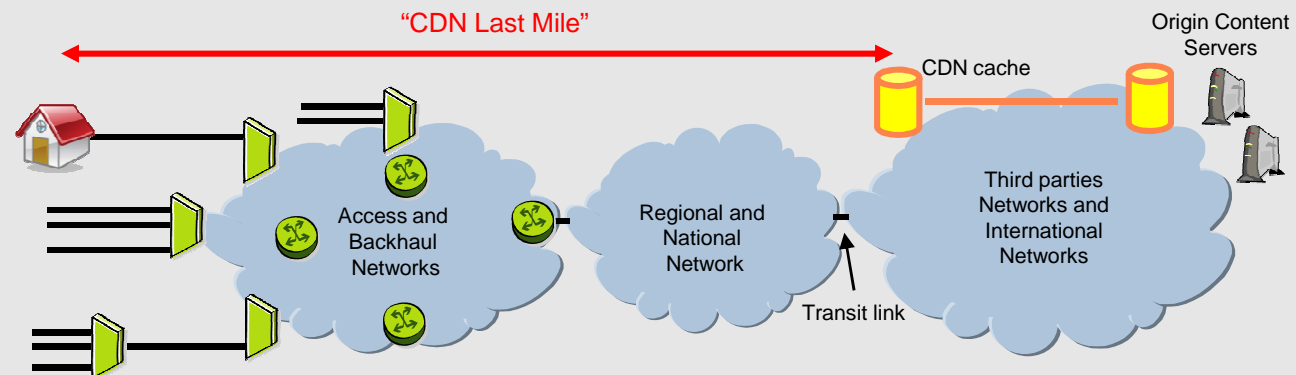


- ICT FP7 Project funded by the European Commission
- February 2010 – February 2013



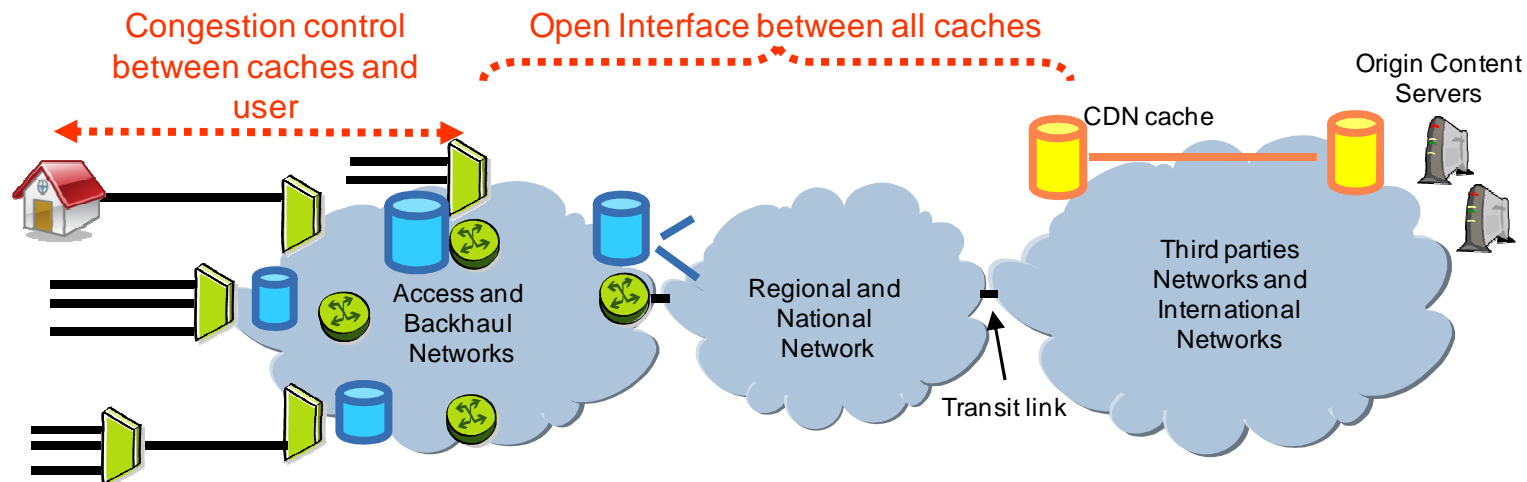
- Tremendous evolution of online multimedia content delivery
 - + 50 to 60% traffic volume growth per year the last 5 years
- Key role of CDN players in the Internet
 - 1/3 of all Internet traffic delivered through a CDN
- ... And shortcomings
 - QoS and network cost in the “CDN last mile”
 - Lack of Openness in Content Delivery Systems
 - Current state of the art leaves large space for innovation, traffic reduction and QoS improvement
 - Business challenges (network & CDN intercos, services & regulation evolution)

Typical CDN deployment for online content delivery





- **Go-to market strategy (WP2)**
To give better incentive for investments for the various types of players and new ways of consuming audiovisual contents over Internet
- **Open Content Aware (OCEAN) Architecture (WP3)**
A new OPEN architecture to foster interco and multi-vendor systems
- **Technical innovations on key building blocks (WP4 & WP5)**
Popularity tracking and caching algorithm, content aware congestion control, distributed delivery systems
- **Experimentations (WP6) and dissemination (WP7)**



OCEAN Open Interfaces

Focus on Content Distribution Interconnection



- Key Aspects
 - Potential Benefits of CDN interconnection
 - There is no one size/model fits all
 - Standardization and compatibility are crucial
 - Leverage available inputs and existing best practices

- Requirements and Architecture (outline)

Content Distribution Interconnection

Potential Benefits of CDN interconnection



- For content providers:
 - Single contract + single bill + single monitoring/reporting + single set of interfaces = easier management !
 - Pricing: high volume = low cost?
 - Brokers: performance/price based CDSP selection
- For CDSPs:
 - Extended footprint
 - CDN failure and overload resiliency
- For end-users:
 - More content with CDN level performance
 - No more flash-crowd related problems

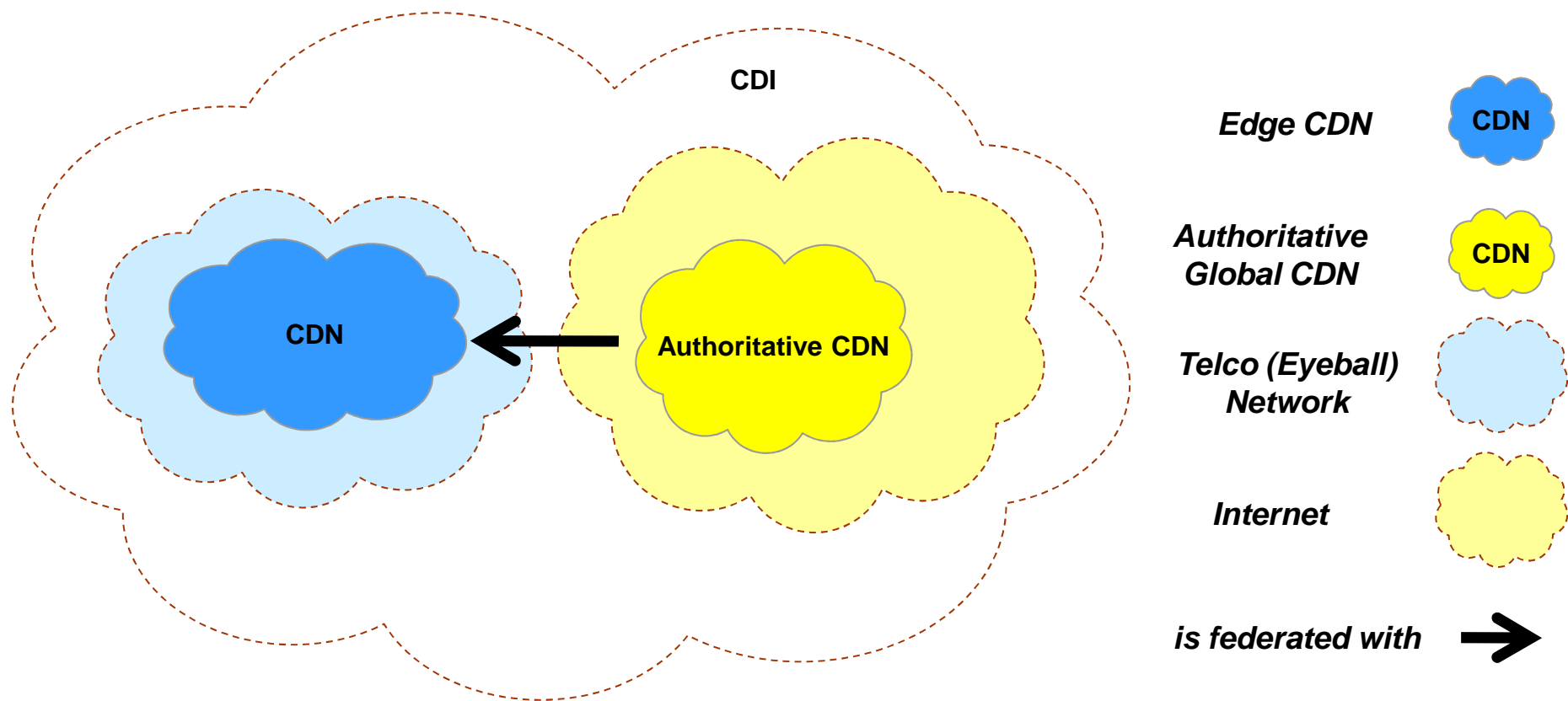
Content Distribution Interconnection

There is no one size fits all (1 / 2)



- **OCEAN studies both short-term scenarios (...)**

To interconnect CDNs in simple configuration (between 2 CDNs), including legacy ones, at low cost and quickly, with matured and proven technologies.



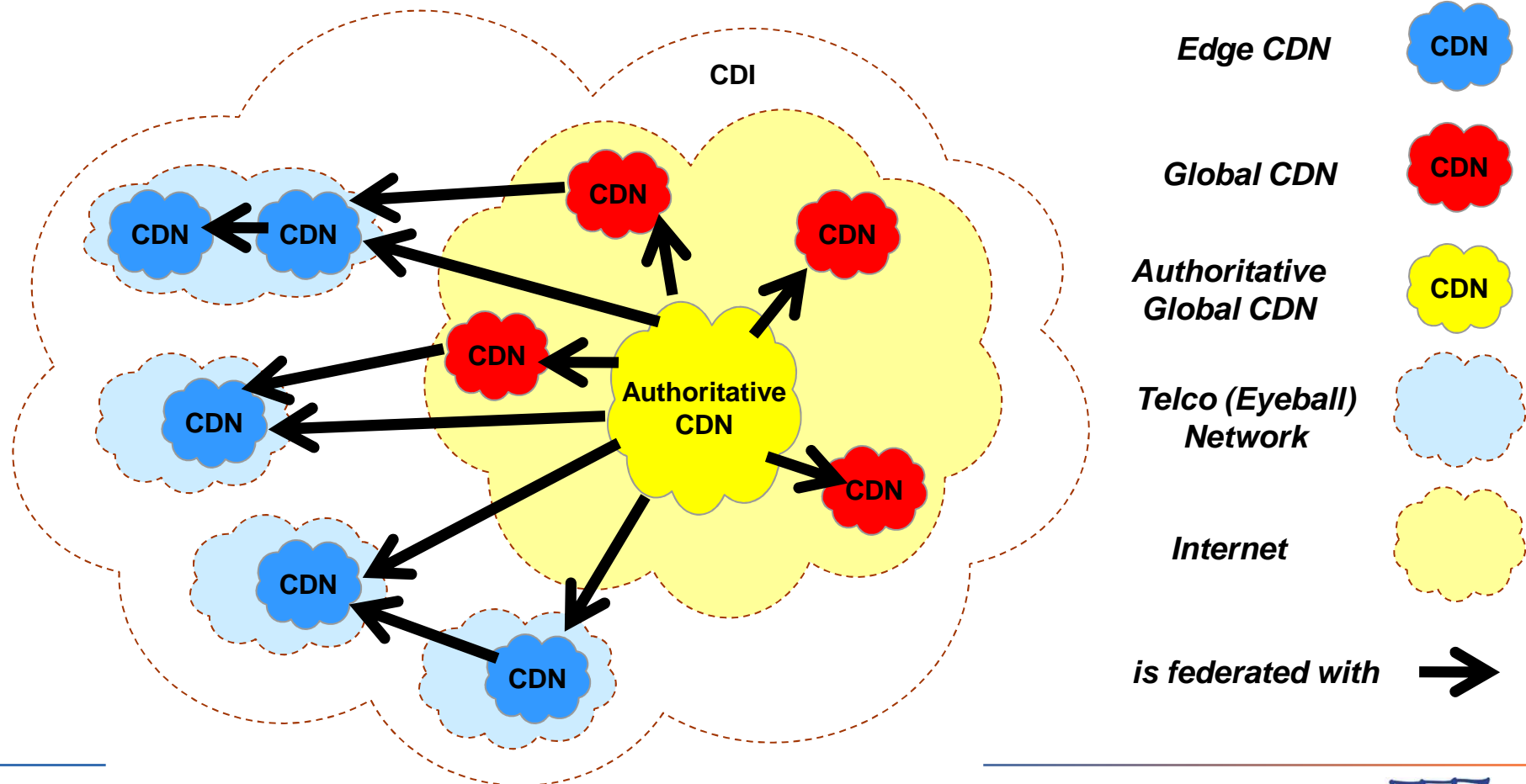
Content Distribution Interconnection

There is no one size fits all (2/2)



- **And prospective scenarios!**

To anticipate on possible future (yet prospective) configurations with CDN interconnection at larger scale.



Content Distribution Interconnection

Standardization and compatibility are crucial



- Interconnection requires **inter-operability** between systems from different suppliers
 - Interconnection requires **compatibility** between systems managed by different delivery service providers
- ⇒ OCEAN consortium aims to participate to standardization initiatives on CDN interconnection
- ⇒ OCEAN consortium members eager to exchange with any other player

Content Distribution Interconnection

We are not going to reinvent the wheel!



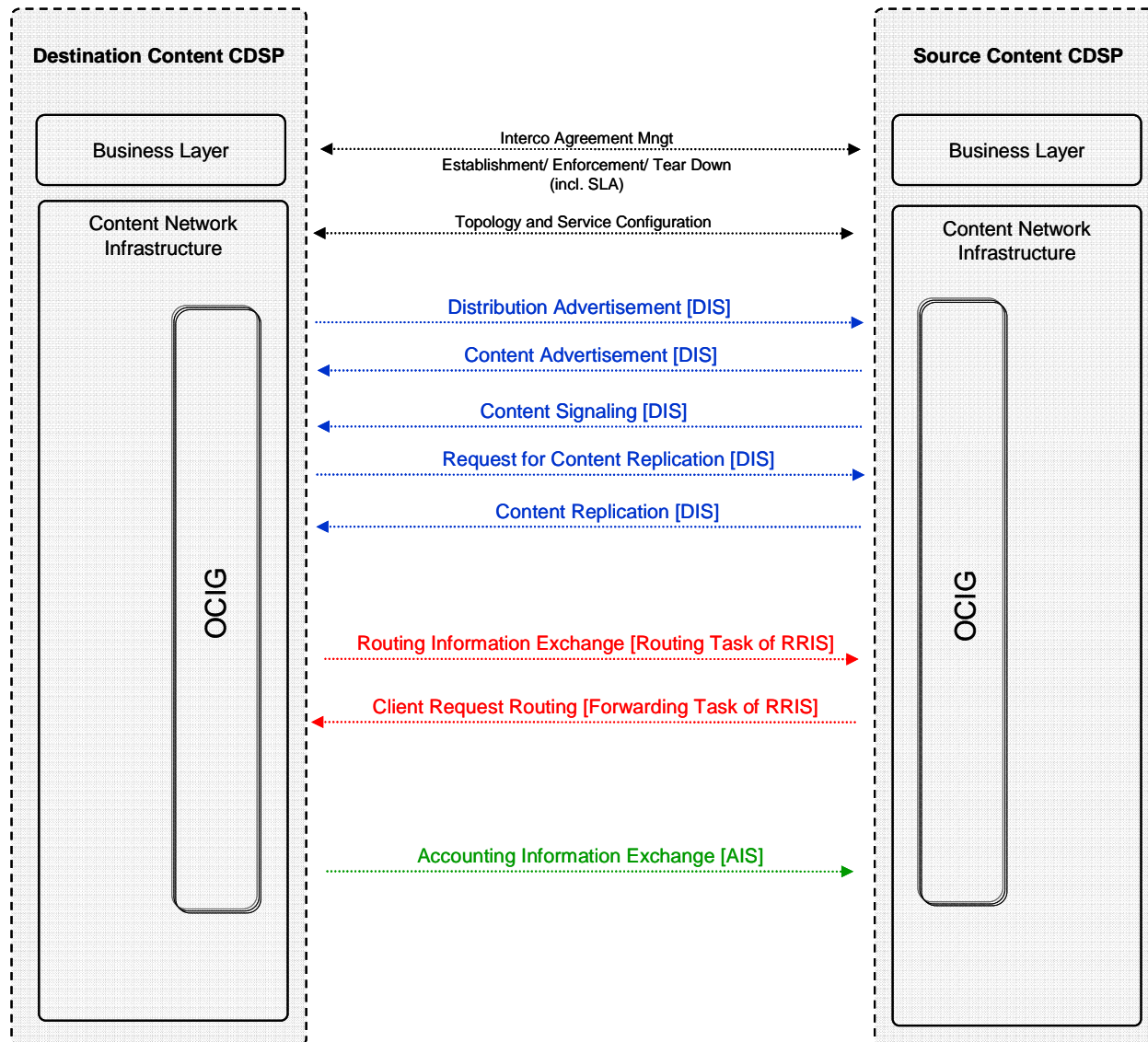
- Leverage available inputs and existing best practices
 - To accelerate the development of solutions for CDN interconnection
 - and be in line with market stakeholders timing constraints
 - To learn from lessons from the past and from third parties on-going initiatives

Content Distribution Interconnection Functional Requirements



- Key requirements for OCEAN
 - Intelligent request routing between CDNs
 - Intelligent caching and coding schemes
 - Content right management

Content Distribution Interconnection Functional Architecture (draft proposal)



AIS: Accounting Interworking System*
 CDSP: Content Delivery Service Provider
 DIS: Distribution Interworking System*
 OCIG: Common Internetworking Gateway
 RRIS: Request-Routing Interworking System*

(*) Terminology based on IETF RFC 3466: "A Model for Content Internetworking (CDI)".

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Conclusion



- What you should remember:
 - OCEAN covers both service and architectural aspects of future content networks
 - OCEAN will end in February 2013
 - OCEAN is open to feedback from other institutions...

- Where you will see us next time:
 - NEM Summit (Barcelona, 13–15 October 2010, <http://nem-summit.eu/>)

- Contact Information:
 - Project Website: <http://www.ict-ocean.eu>
 - Project Coordinator: Yannick Le Louédec (yannick.louedec@orange-ftgroup.com)



Question & Answers

Thank you