Open ContEnt Aware Networks

Yannick Le Louédec. France Télécom.

www.ict-ocean.eu

3rd EU-Japan Symposium, October 20-22 2010.

The research leading to these results has received funding from the European Union's Seventh Framework Programme ([FP7/2007-2013]) under grant agreement n° 248775.

OCEAN
Project Consortium and Timeline

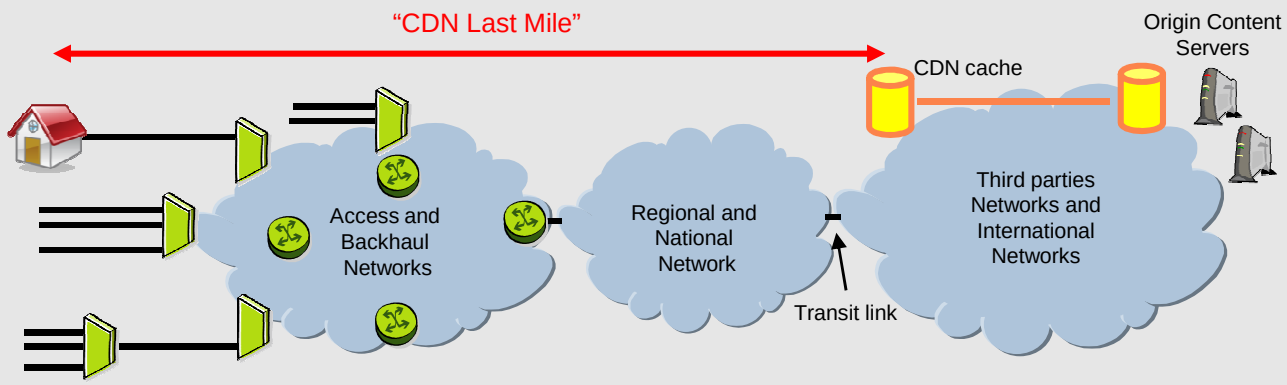
- ICT FP7 Project funded by the European Commission
- February 2010 – February 2013

Information Society Technologies

OCEAN
Project Context and Challenges

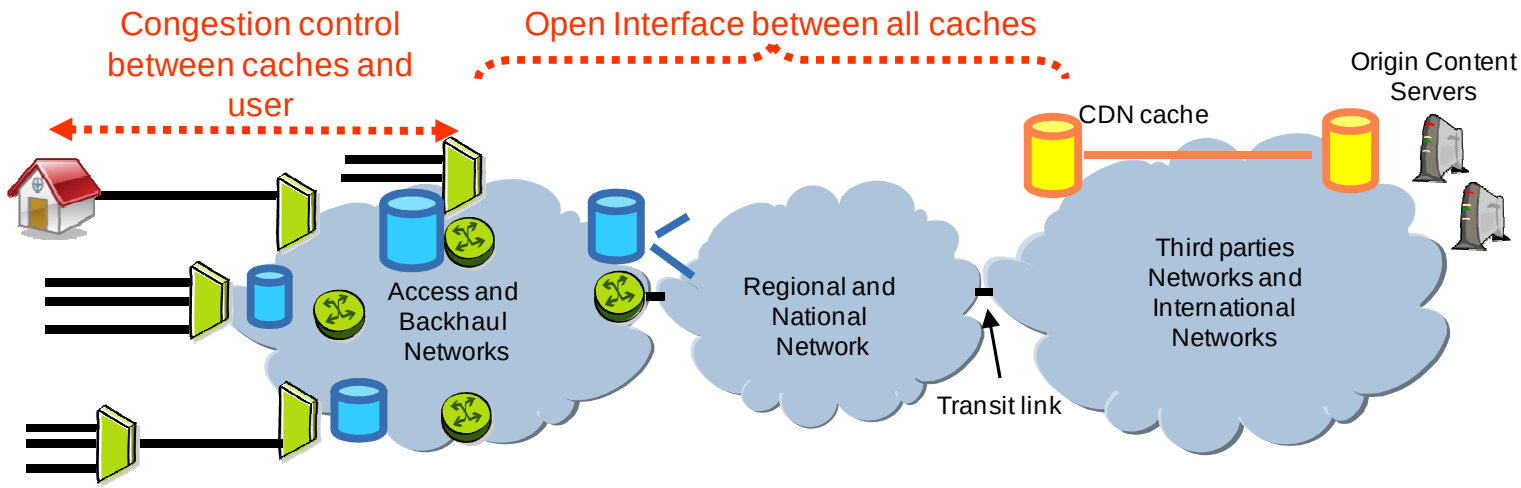
- Tremendous evolution of online multimedia content delivery
  + 50 to 60% traffic volume growth per year the last 5 years
- Key role of CDN players in the Internet
  1/3 of all Internet traffic delivered through a CDN
- … And shortcomings
  - QoS and network cost in the “CDN last mile”
  - Lack of Openness 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



OCEAN
Project Objectives and Structure

- 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

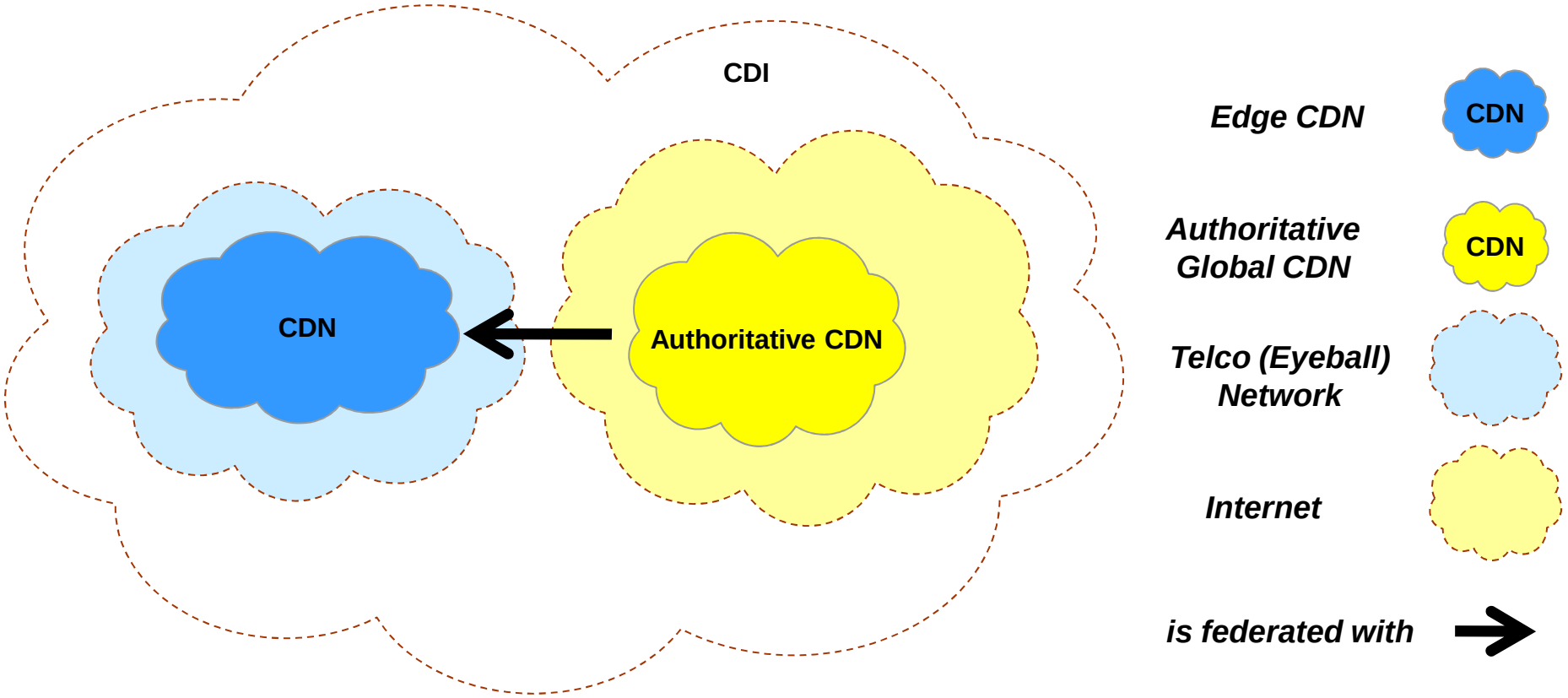
- For content providers:
  - Single contract + single bill + single monitoring/reporting + single set of interfaces = easier management !
  - Pricing: high volume = low cost?
  - Brokers: performance/price based CDSP selection
- For CDSPs:
  - Extended footprint
  - CDN failure and overload resiliency
- 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 (…)

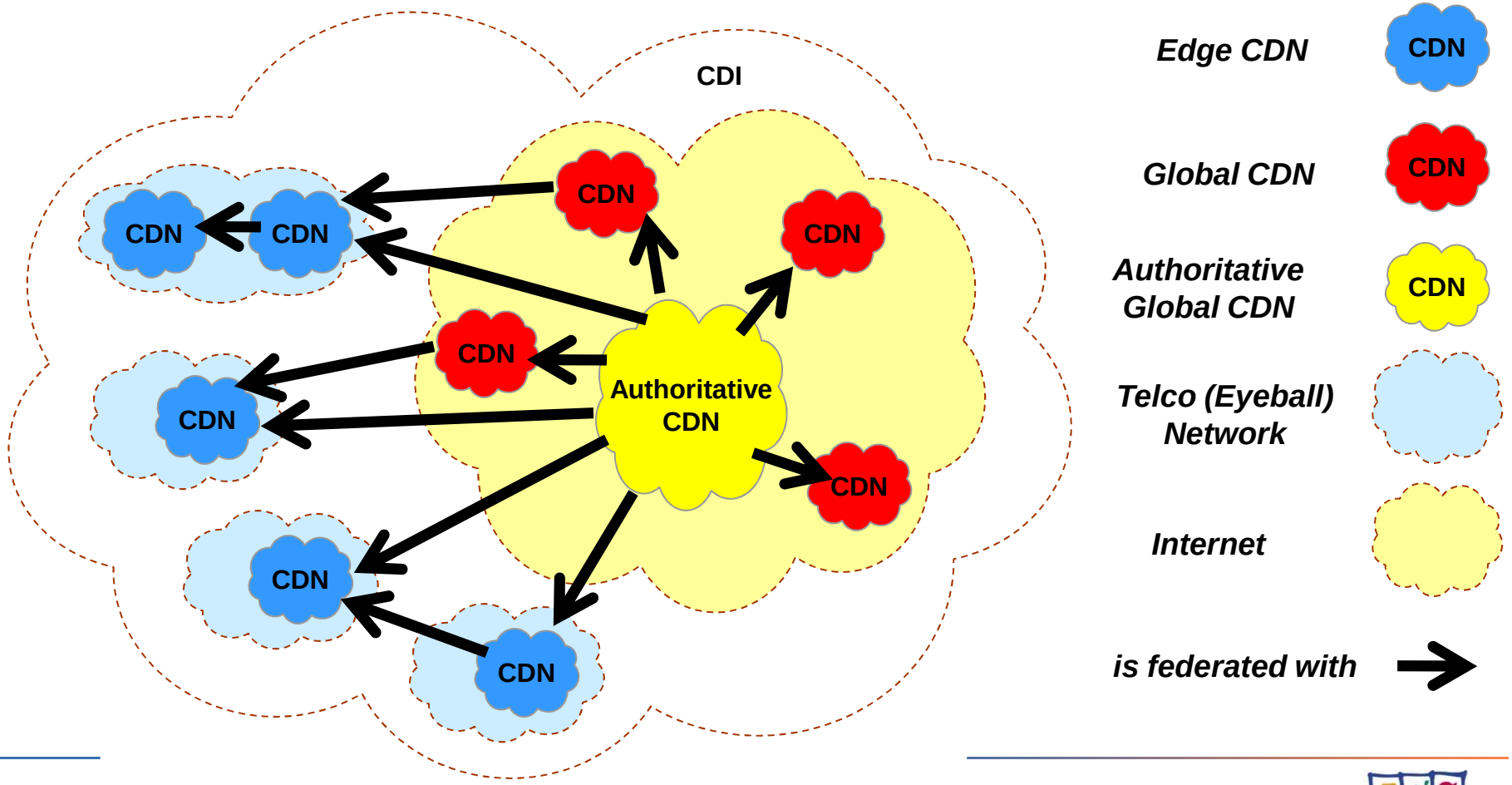
  To interconnect CDNs in simple configuration (between 2 CDNs), including legacy ones, at low cost and quickly, with matured and proven technologies.



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

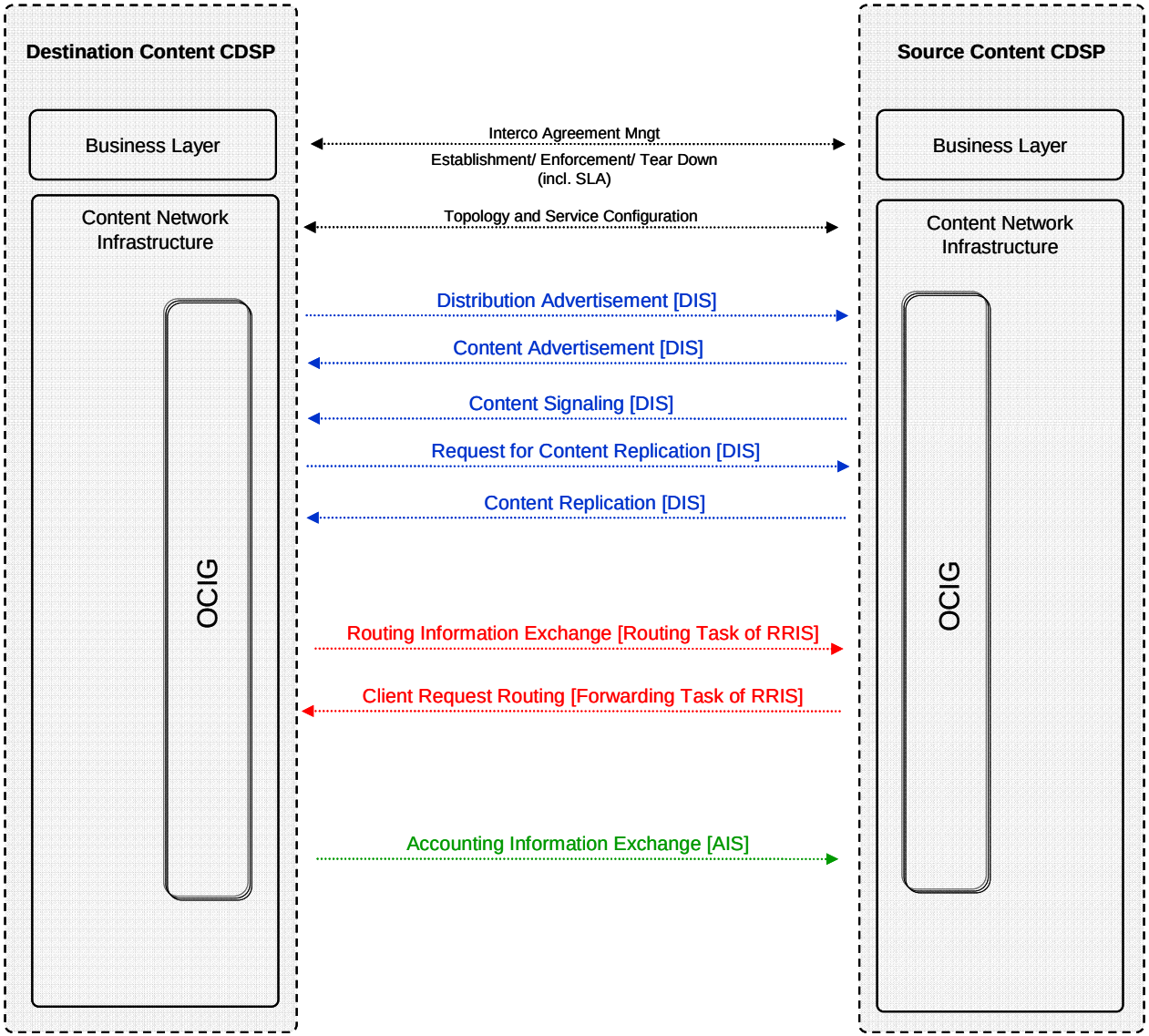
We are not going to reinvent the wheel!

- 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)".

OCEAN
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…

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

Question & Answers

Thank you

The research leading to these results has received funding from the European Union's Seventh Framework Programme ([FP7/2007-2013]) under grant agreement n° 248775.