FLAME: Platform, Infrastructures, and Foundational Media Services

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The FLAME Service Delivery Platform

- **A new dynamic content production and delivery platform**
  - Layered modular architecture with cross layer optimisation, analytics and control
  - Distributed computing models that combine distant media cloud with mobile edge, i.e., support for many points of presence
  - Deployed in software-defined infrastructure in minutes, supporting flexible service endpoint management, routing and switching
- **Supporting enhanced Quality of Experience**
  - Personalised, interactive, mobile and localised media services
Technical Proposition

FAST, ADAPTIVE

• Faster response, better engagement
  • service deployment at the edge of the network (e.g. in a street cabinet)
  • compute located just one hop away (at best) from the users, low latency access
  • compute workload distributed across the network

• Improved service request routing
  • fast (between 10 and 20ms) switching time from one service instance to another by not relying on the DNS.
  • overcomes inefficient ‘triangular’ routing of requests in current IP networks

• Multicast delivery of http responses
  • multicast-based delivery of HTTP responses to service request transparently to the (otherwise unicast) semantic of HTTP transactions.

ROBUST, SECURE

• Net-level indirection
  • indirection of service requests at the network level allowing error response to redirect the original request to another alternative surrogate
  • nesting operations leads to a net-level ‘search’ among all available surrogate instances

• Less chance of insecure direct object references
  • CDNs morph into surrogate service endpoints with the potential to hold the necessary security context when serving the desired content

• Secure end-to-end access to content
  • CDNs deployed as properly secured endpoints with the necessary certificate sharing between content
  • Securing content delivery according to the originally intended end user facing contract -more secure for provider and consumer.
Micro-Services From Far-Edge to Distant Cloud

Anything-as-a-Service (new interactive, immersive experiences, localized where possible)

Service-based architecture across all edge and the Internet

Well-proven Internet technology, such as web services, HTTP, IP, ... mixed with virtualization technology

WWW.ICT-FLAME.EU
An Increasingly Rich Dialogue between Experimenter & Platform

...we will evolve over time into an SLA-level demand-supply dialogue

Initially utilizing a definition of an exact resource template...

...which is then internally translated into the best matching service template

CLMC

Media Component

Orchestrator
Supported by Flexible Management and Control

Infrastructure

And set policy identifiers to control instances based on, e.g., latency or load triggers

SFEMC

SF Routing

Orchestrator

Configure communication resources

Configure infrastructure resources

Infrastructure
FLAME Foundational Media Services

• **Role of Foundational Media Services**
  • *Support experiments* through providing basic building blocks
  • *Take advantage* of FLAME platform capabilities, e.g.,
    • Multicast, e.g., replication
    • Indirection, e.g., replication
    • Chaining, e.g., flexible transcoding
  • Provided as FLAME-instrumented images and orchestration template definitions

• **Current offering**
  • Metadata database
  • VoD and live streaming
  • Content conditioning, including transcoding/transrating
  • Content ingest and storage
  • Media quality analysis
  • Virtual CDN
Level7: Sicily
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