Remote rendering for games and 3D graphics applications in the cloud

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Agenda of presentation

- Project Organization
- Key Tenets and Objectives
- Remote Rendering Principle
- Platform Logical Architecture
Project Organization

- Winner of Call for Projects #1 “Cloud Computing” by the FSN (5 projects selected nationwide)
- Project length: 36 months
- Official Start: 01/01/2012
- Coordinator: Bull
- Open Source (Apache V2)
- http://gitorious.ow2.org/xlcloud
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- ATEME: H264/MPEG-4/AVC low latency compression algorithms
- Bull: cloud infrastructure, distributed systems architecture and HPC cluster
- CEA List: interactive simulation of natural phenomenons, virtual reality
- EISTI: marketplace, OpenERP integration
- Inria Reso: energy efficiency
- TSP (Lab Artemis): MPEG standardization, video compression, multimodality
- Silkan: massively distributed (HPC) software architecture for interactive simulation
- OW2: communication, dissemination
Key Tenets and Objectives

- Provide **virtual cluster instances on-demand** through self-service API and Web UI
- Point to point application **latency (lag) < 200 ms** (pipeline, capture/encode, network, decode, display)
- **Standard compliance** (Eg. SAML V2, OAuth 2.0, XACML)
- **Layered and modular design** to allow for seamless support of many types of applications and workloads (purpose-built PaaS computing environment)
- **Policy-based Service Level Management** (SLM) with automatic scale-up / scale-down
- Business applications integration framework for **service composition and aggregation**
- **Secure multi-tenant environment** (isolation, strong authentication and access control)
- Adaptation of the Cloud Management System to best leverage the underlying infrastructure performance (HPC cluster)
- Fine-grained resource usage metering and accounting for chargeback
- Energy efficient meaning **produce the most output for the least cost**
How remote rendering works?
Example of games played in Remote Rendering
Platform Logical Architecture
Thank you for your attention