iray® for Cloud Computing

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About mental images

- Founded 1986, ca. 95 staff
- Based in Berlin, San Francisco, Melbourne
- NVIDIA subsidiary since Nov. 2007
- Fundamental, patented technologies
- Academy Award® winning product
- Global leader in 3D component SW: 10+ million seats installed
- OEM business model, key markets:
- Digital Content Creation
- Computer Aided Design

mental images®

Worldwide Leader in Photorealistic Rendering

Image rendered with iray in RealityServer.

What's New? - iray® Everywhere...

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Workstation

Cloud

3D Enterprise Workflows

Advanced Light Simulation Algorithms

Teraflop computing with CUDA

Unique IP: QMC Sampling, ray-tracing, BSDF materials, etc.

The iray® Experience

Why Now? - iray® Enabled Applications and Services

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Workstation

Autodesk®

Bunkspeed®

DASSAULT SYSTEMES

Cloud

amazon web services™

peer1

PENGUIN COMPUTING

iray® Enabled: Key Applications and Benefits

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Workstation

- Physically correct renderings in seconds
- Interactive ray tracing
- Faster, better decisions and job turnarounds

Cloud

- Massively speed up rendering on demand
- Easily share visualization results over the web
- Speed up design decisions in collaboration with stakeholders

3D Enterprise Workflows

- Web-based 3D collaborative applications and application services

Bunkspeed Shot™

Autodesk® 3ds Max®

CATIA® V6

migenius

mental ray®, neuray® — **iray®**

RealityServer® — **iray®**

iray® Enabled: Use Case Product Design

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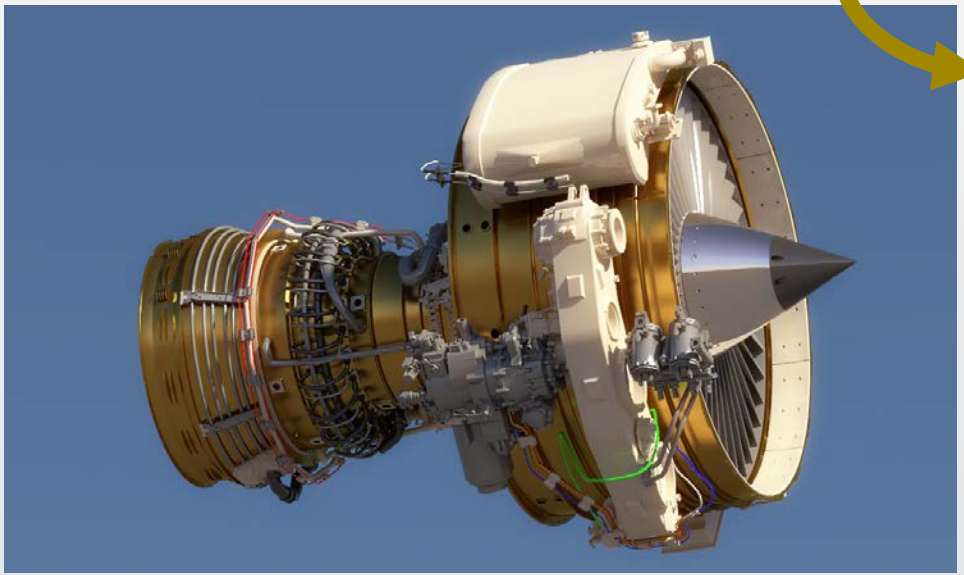
Workstation

Cloud

3D Enterprise Workflows

CAD/DCC Design ↔ Visualization Speed-up ↔ Collaborative Design Review



Design Review and Product Presentation

iray® Enabled: Use Case Product Design

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Workstation

Cloud

3D Enterprise Workflows

CAD/DCC Design ↔ Visualization Speed-up ↔ Collaborative Design Review

Product Configuration

iray® Enabled: Use Case Geospatial Solutions

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Workstation

Cloud

3D Enterprise Workflows

Professional Geodata Solution ↔ Visualization Speed-up ↔ Collaborative Review

Fast, Secure City Model Review

RealityServer: Realtime Access Anywhere

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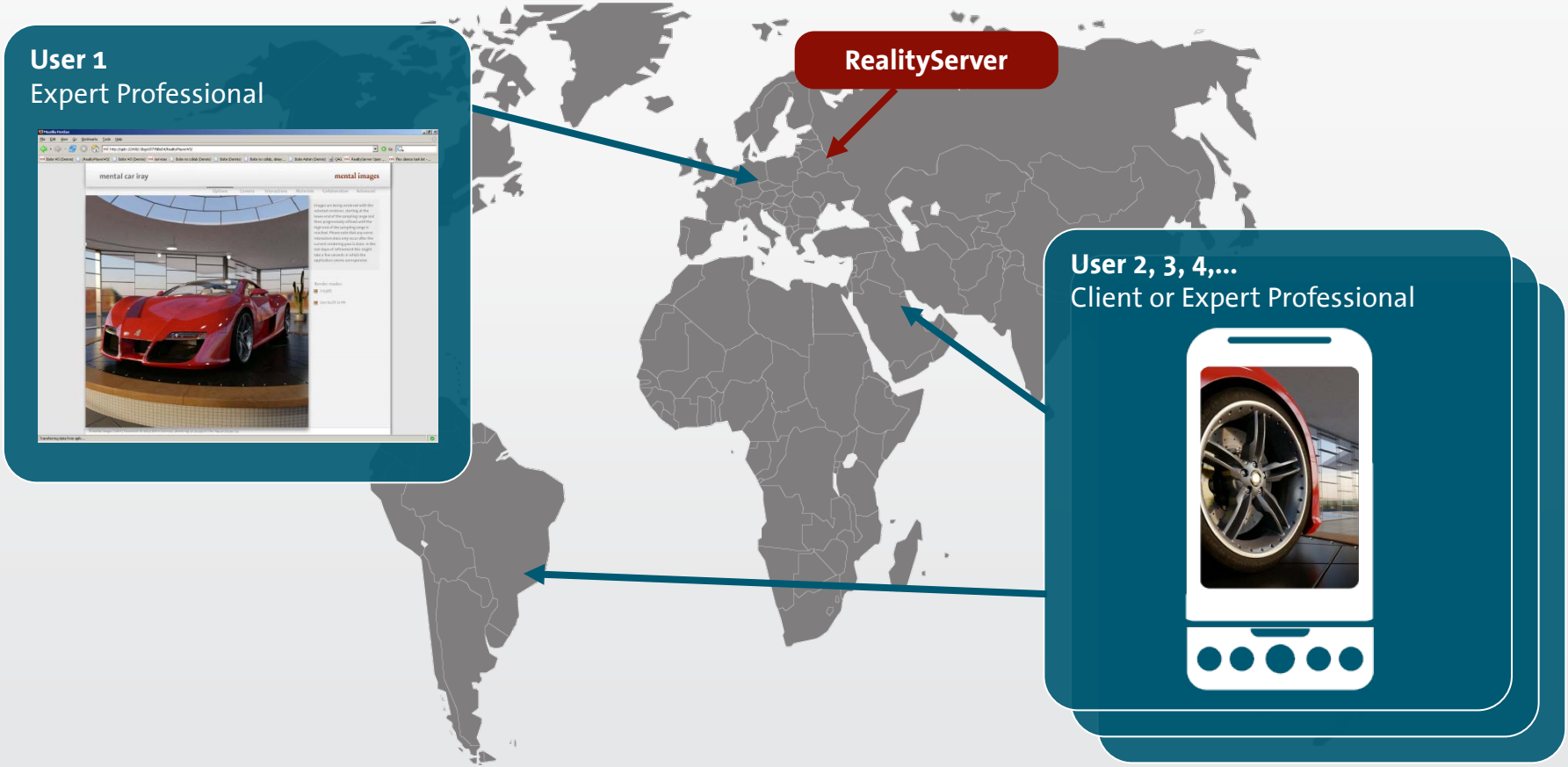

RealityServer - The Basic Concept

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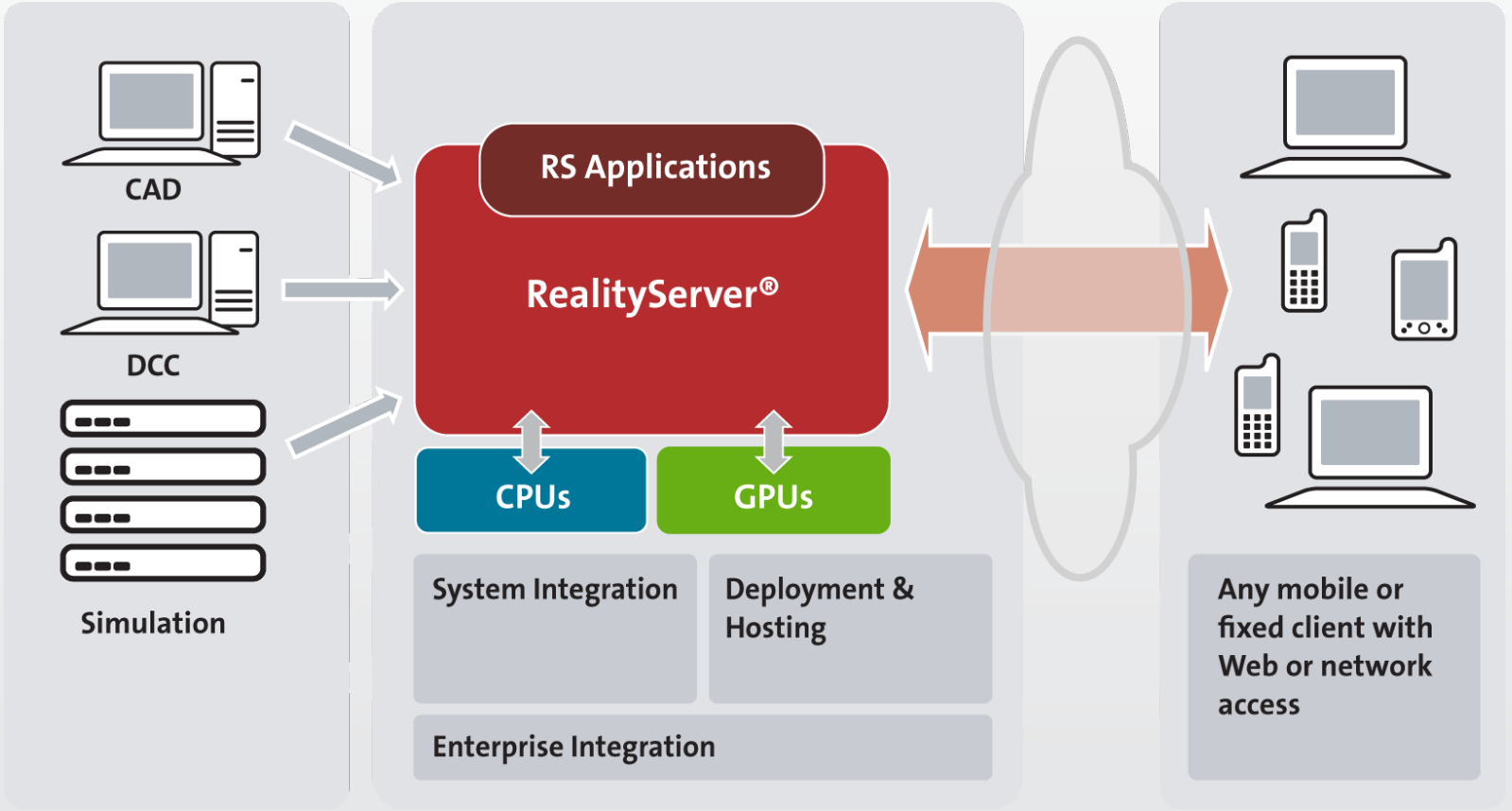

3D Web Service Use Cases

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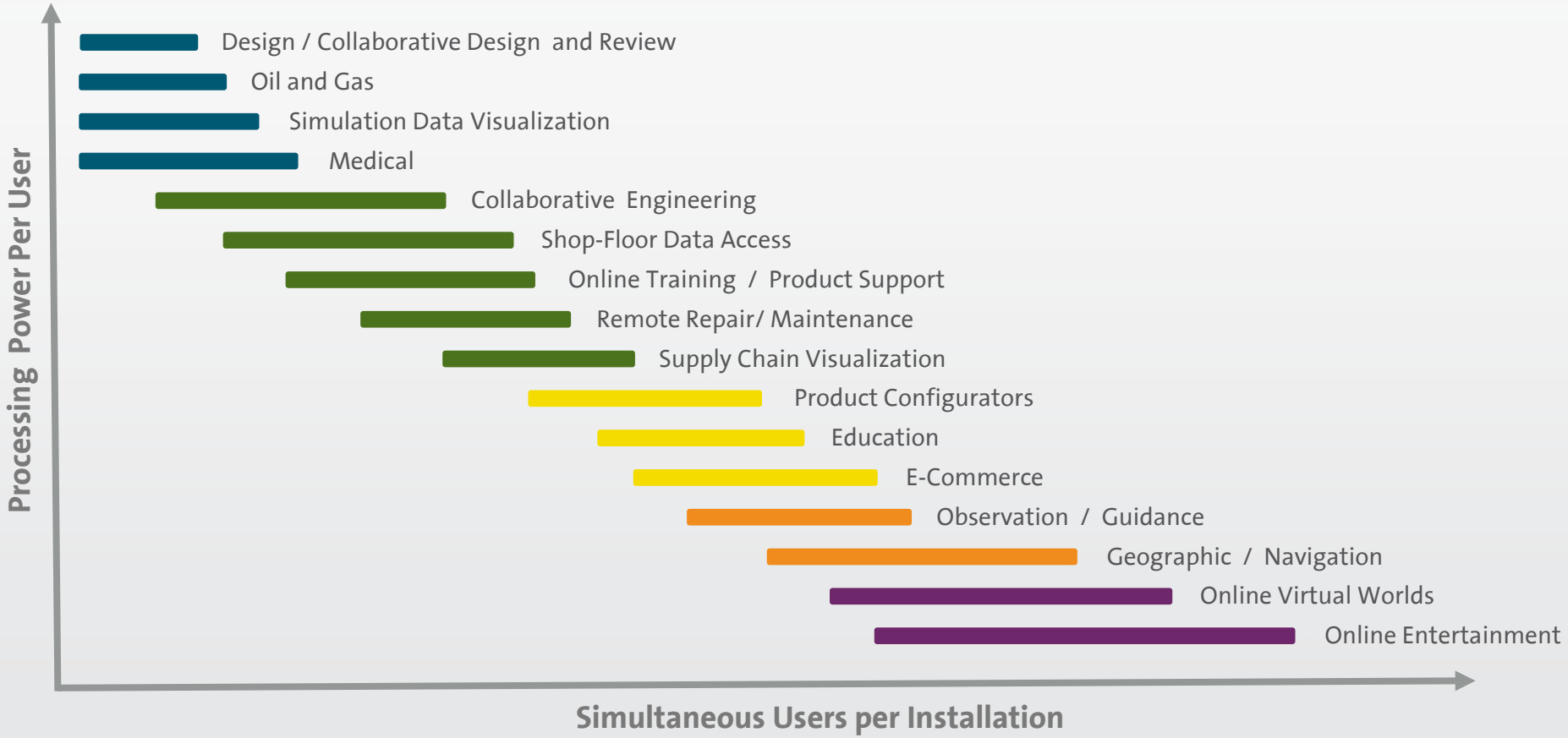

iray® Enabled: Implementation Options

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Workstation

Cloud

3D Enterprise Workflows

Out-of-the-box

- Bunkspeed Shot™
- Autodesk® 3ds Max®
- CATIA® V6
- • • •

Toolsets and APIs

- RealityServer Web Services
- RealityServer AppLab™ and RealityDesigner™
- APIs: JavaScript, C++
- miGenius

Cloud Service Providers

- Amazon Web Services
- Peer 1
- Penguin Computing
- • • •

mental ray®, neuray® — iray®

RealityServer® — iray®

iray® Enabled: System Requirements

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Workstation

NVIDIA Quadro or Tesla

Deployment

- locally installed out of the box
- local or cloud-based performance 'boosting'

Implementation

- out-of-the-box / no development

Cloud

NVIDIA Quadro or Tesla

Deployment

- in-house utility or commercial cloud service
  Peer 1, Penguin Computing,...

Implementation

- out-of-the-box, possibly some adaption or limited development

3D Enterprise Workflows

Development
NVIDIA Quadro or GeForce

Deployment
NVIDIA Quadro or Tesla

Deployment

- in-house or cloud-hosted

Implementation

- Custom designed application service
- Quick-start toolsets available

iray® Enabled: System Requirements

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Workstation	Cloud	3D Enterprise Workflows
Hardware		
1-2 CUDA GPUs (NVIDIA Quadro recommended)	▪ No upfront investment when using commercial Cloud services ▪ Only usage fee for HW and SW (hourly, monthly) ▪ Optional combination with in-house server/utility	Development: As for workstation. Deployment: As for renderfarm.
Software		
No extra cost		Development: Free. Deployment: Licensed per PU for in-house use or time-based Cloud charge
System integration		
No extra cost	Possibly limited setup cost for integration of could services with in-house workflow	Project-specific (in-house or through system integrator)
$ 500 – 4,000 per seat* *Excluding base workstation	**$2–5 per PU per hour**	**$10,000 +**

iray® Enabled: System Requirements

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3D Web: The pieces are coming together...

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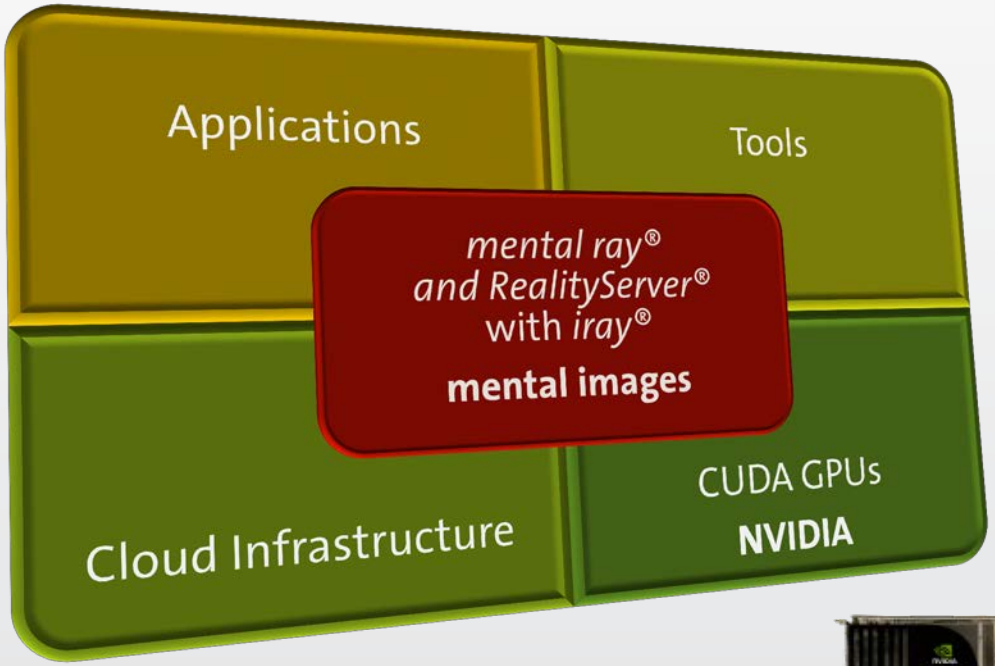
- Autodesk® 3ds Max®
- Bunkspeed Shot™
- CATIA® V6
- RTT DeltaGen®*
- mental ray® Standalone
- . . .

- Amazon Web Services
- Peer 1
- Penguin Computing
- . . .



- Web Services
- AppLab™ and RealityDesigner®
- migenius

* Announced statement of intent. Release date tbd.