Visualisation and Virtual Reality

Grid for Architects

CETIC – Business Experiment 03
Virtual reality for architects

Before …

- No CAD (computer aided design) software
- Blueprints
- Models
Virtual reality for architects

... and Now

CAD model / Image Rendering / Post processing
Current situation

From wireframe model to rendered image

Local computing resources

CONGRATULATIONS!
Your scene is now rendered

Usually 12 hours computing time

Modelling  Rendering  Post-processing
Final result
How does it work?

1. User submits a job to the grid broker.
2. Grid broker searches for available resources.
3. Resource discovery identifies suitable resources.
4. Grid deploy connects the user to the selected resources.
5. Job scheduler schedules the job across the resources.
6. Renderer runs the job on the resources.
7. Results are returned to the user.
Architecture of the application

- **User**
  - **GUI**
  - **Portal**

- **Broker**
  - **Grid broker**
  - **Resource discovery**
  - **Grid deploy**

- **Middleware**
  - **MDS**
  - **GSI**
  - **GRAM**
  - **GRIDFTP**

- **Hardware**
  - **cluster #1**
  - **cluster #2**
  - **cluster #3**

**Middle ware (Globus Toolkit 4)**

**Hardware**
- +scheduler
- +monitoring
Real-time Rendering
Conclusion

✓ Peak rendering needs addressed
✓ More responsive for architects
✓ Scalable and flexible software
✓ Real-time: enhanced way to sell projects
✓ Less investment (Hardware, Software)
✓ Less post-processing

before

| Modelling | Rendering (12h) | Post-processing |

now

| Modelling | < 1h Post-proc. |
Contact

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Example of still image rendering
New trends in rendering

Thanks to the Grid
- more power
- more flexibility

Due to customer needs
- takes part in work
- last minute changes

Innovative rendering software

real-time rendering

real-time visits
new marketing tool
A team to address the problem

Innovative software

- mental images (Independent Software Vendor)

Grid specialists

- FPMs (technology provider)

CAD users

- CETIC (integrator)

- Art & Build (end-user architects)

What do architects really need?