Let's get serious:
How video game technology transforms other industries

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Spinor GmbH
powers award winning video game Dreamfall
powers worldwide best game of the year
Games & Industry

Games
- 3D Scenes
- Interactive Virtual worlds
- Customization
- Tool Pipeline
- Authoring Tools

Industry
- Stability
- Devices (tracking, input, hardware etc.)

- Weapons, pick-up items, etc.
- Console support
Games Technology in Industry

- Video Games
- Computer Games
- Broadcasting
- Events
- Simulation Visualization
- Others
Used for example by

philotech
Volkswagen
ProSiebenSat.1
 productions
Funcom
ATI
Intel
Siemens
2DF
ARD
KiKA
Parts of an 3D Engine

Production

Authoring Editor
- World editing
- Behaviours
- Template Nesting

Tools
- Exporters
- Packaging

Runtime

Rapid Construction Kit
- Behaviour
- Sensors/Triggers
- Scripting

Engine Modules
- Renderer
- Sound
- Multi-thread./Multi-core

Live Editing

Visuals
Objects
Templates
Event Flow
Hierarchy

Interaction
Logic
Events
...

Optimization

Networking/Distribution
Streaming
World Management
...
For Games And Industry: Production Pipeline is the Key
RAD Software And Middleware → Key for Flexibility Beyond Gaming

1. A flexible 3d **engine** RAD software & middleware (Main APIs are in C++ and Python)

2. A flexible 3d **application/tool** RAD software & middleware (Main APIs are in Python and C++)

```c
// Create an actuator (animation controller):
s3d_CEngActuPtr Actu = s3d_EngBaseBasicActuCreate(
    MsgHandler, S3D_SAMPLE_CURRETR, 0);
if(Actu)
{
    // Lock object (because of multi-threading):
    S3D_UTIL_LOCKBASE_SEIZE_CURMARK(Seize, *Actu)
    // Set some animation parameters:
    Actu->SetClock(Clock);
    Actu->SetCyclic(true);
    Actu->SetVel(2.0f); // Double animation velocity
    Actu->SetTarget(S3D_ENG_ACTU_INFINITY); // Play forever
}
```
Tool Pipeline

If available: existing objects and animations

e.g. C4D, 3ds, COLLADA, ...

Export

Objects and animations: creation and preparation.

Assigning meta data to objects (e.g. shaders, mesh variants, object merging)

e.g. Max, Maya, Photoshop

Export

Nodes, GUIs

Custom modules

Authoring system

Runtime

Custom modules

DLLs, libs, TCP, SAP, ...
Compositing a Application Feature

Authoring System Plugin (Python)

Parameter Block via TCP

Run-time Component (C++)

Live Access via SAP/TCP

Run-time Component (C++)

Parameter Block Template

```
ident "kit_base.producer" param
  { active 1
    bag_ident "kit_base.producer_bag_name"
    "player_rawproducer"
    forw_name
  }
```
Keeping complex software alive with true and consistent modularity

Traditional plugin approach

Limited modularity

Flexible approach

Full modularity
Agility, RAD, Modularity

• Consequent usage of **Agile Development**
  → Don't cummulate structural burdens from the past

• Consequent usage of **Rapid Development** for tools/GUIs
  → e.g. Python / wxPython
    (up to 5x more productive than Java/C#)
  → Live-Live Editing

• Consequent **modularity**
  → 100% in modules, 0% in core.
Efficient Production

Click your 3d application together live!

- Various elements:
  3D objects, physics, animation controllers, sensors & triggers, dispatchers, scripting, …

- Multiply your options:
  Live nested prefabs with parameters

- Very modular, customizable and expandable
is used by three of the four biggest German broadcasters
powers main evening news of Pro7 and Sat.1
At this time, multiple dozens broadcasting formats are powered by Shark 3D.
powers visualization for Volkswagen, Siemens and others
powers interactive simulations and visualisations
powers interactive events for Intel, Caterpillar and others
Rendering as figurehead
Realistic hard and soft shadowing from high-performance real-time area lights
Thank you!

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