



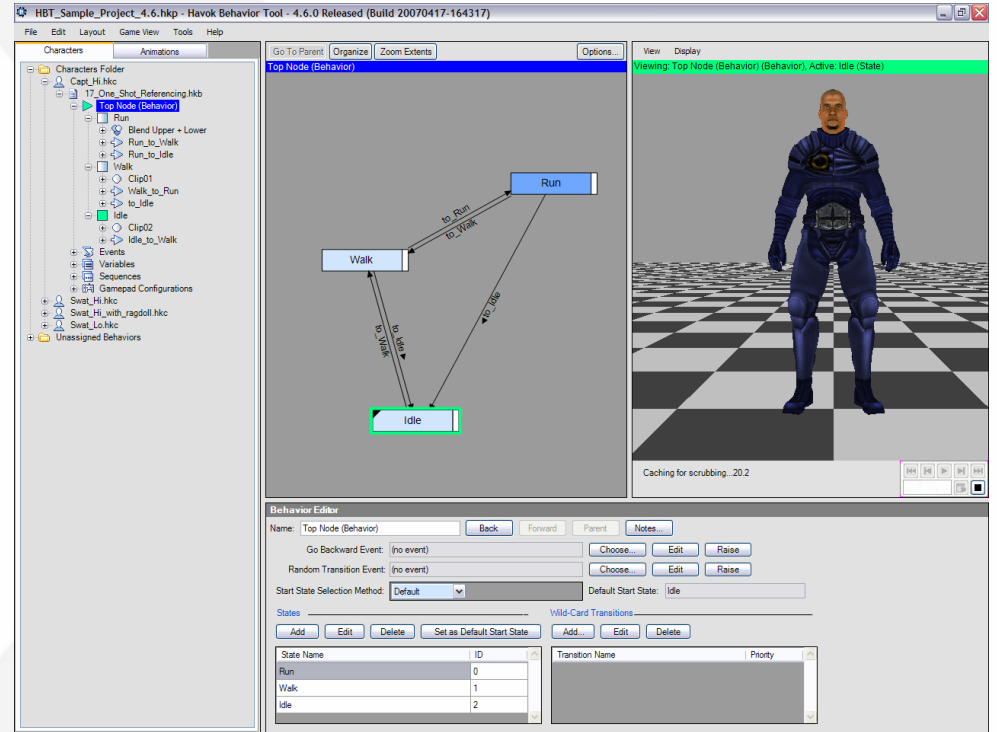
# Welcome



日本最大級のゲーム開発者カンファレンス  
**CEDEC**  
**2007**  
CESA DEVELOPERS CONFERENCE

# Havok Behavior CEDEC 2007

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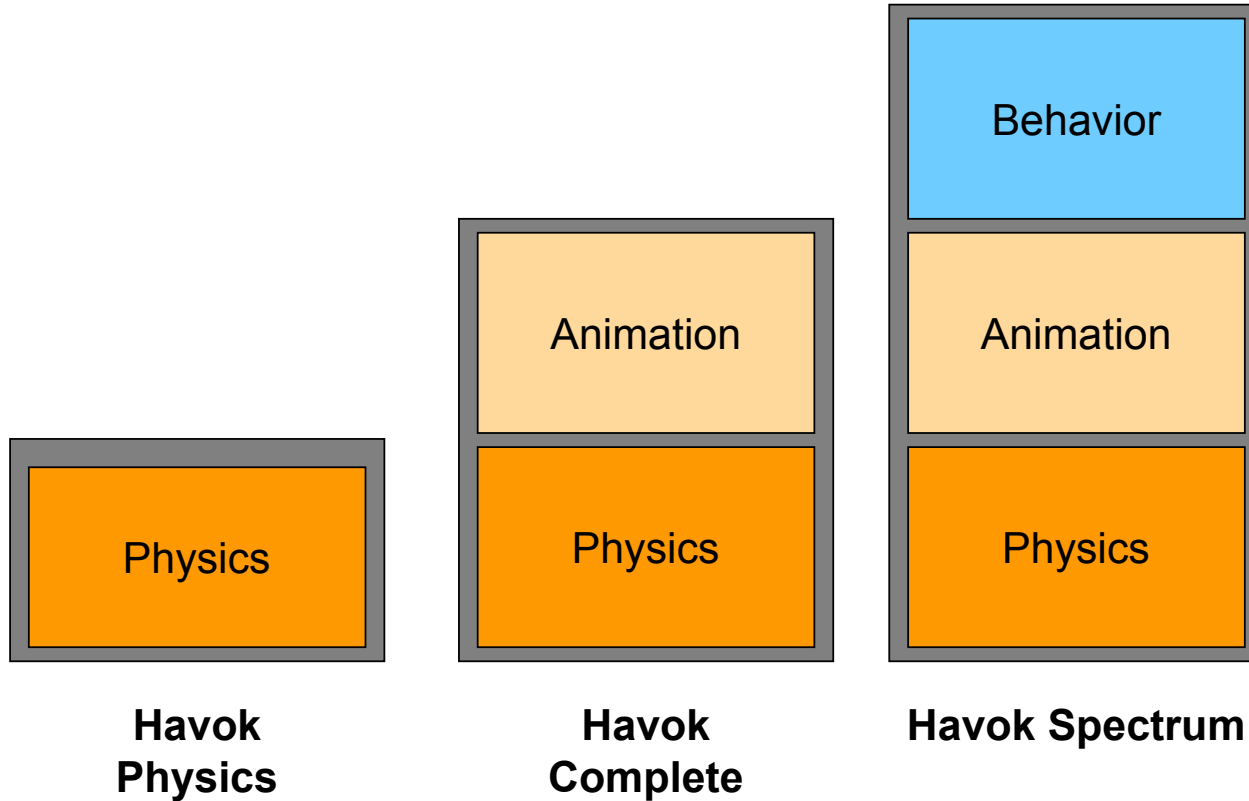


# Agenda

- Havok Product Family
- Havok XS for PS3
- What is Havok Behavior?
- Demo
- General Benefits
- Behavior Roadmap
- Q & A



# Havok Product Family



# Havok XS for PS3

## ➤ Havok Complete XS users get:

- Libraries (binaries only, no source) & demo code
- Support from Sony

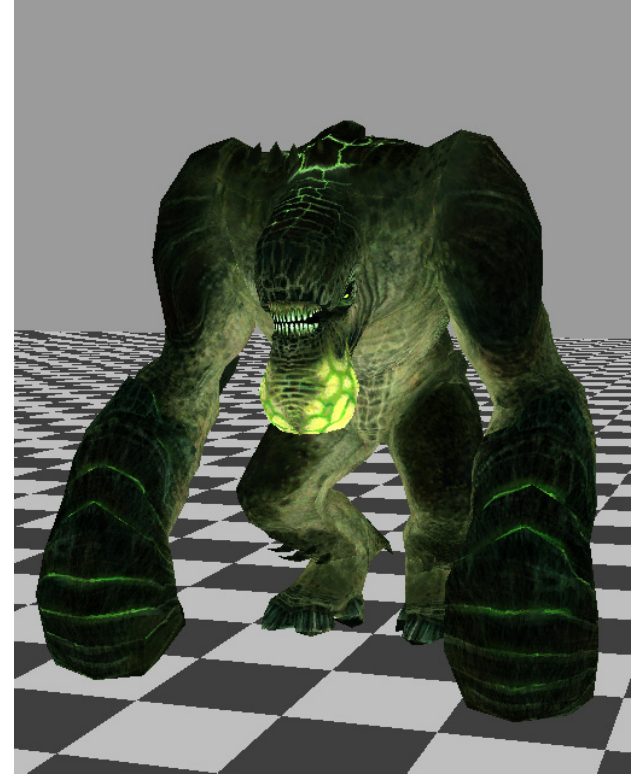
## ➤ Havok Complete licensees get:

- Approximately 85% of source code, including
  - all Havok Content Tools source (C++ and XSI, Maya, 3ds Max script).
  - all of hkaAnimation, hkaRagdoll, hkpCollide, hkpDynamics, hkpVehicle, hkSerialize
- Support direct from Havok.
- Online, email and phone support.
- Optional professional services (on-site support).



# What is Havok Behavior?

- An extensible tool and event-driven run-time SDK for composing character behaviors for interactive games
- Implements “Hierarchical” and Parallel Finite State Machines and Blend Trees (data flow graphs)
- Combines key-frame, motion capture, procedural and physically simulated behaviors in a unified run-time framework
- Builds upon Havok Complete (physics + animation tools and SDK)

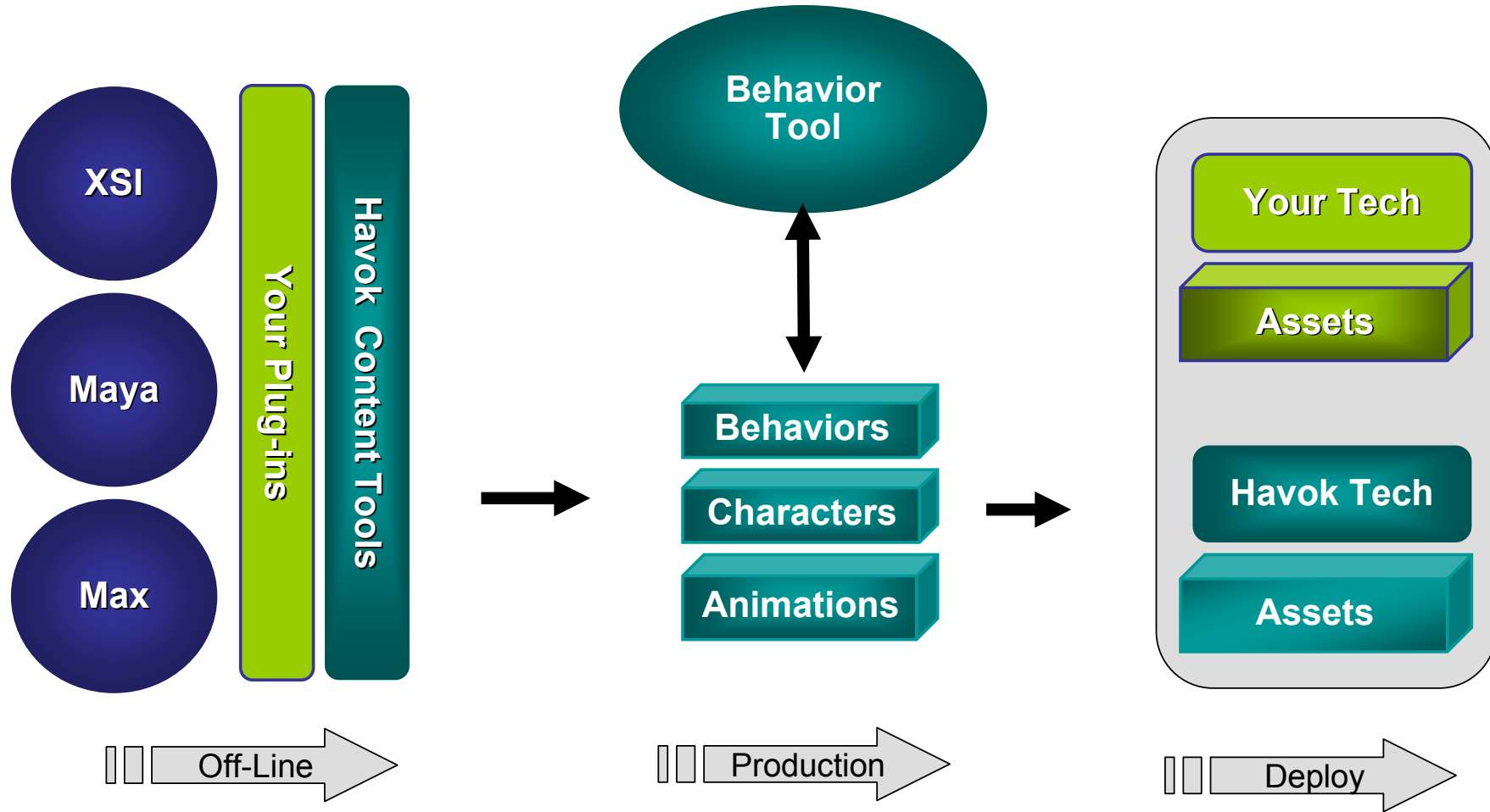


# Havok Behavior Enables you to

- Manage animation blending and programming early on in your project
  - Aggregate and compose
  - Preview on target hardware
- Reduce the number of animations you have to create using procedural methods
- Ensure high quality animation transitions/blends using the tool
  - Detect pops and/or artifacts very early on in your game production
  - Make decisions on when/what to keyframe or control with procedural methods
  - Verify and control the flow of your animations
  - Diagnose/debug potential Gameplay scenarios
- Avoid tedious work tweaking animation parameters by programmers



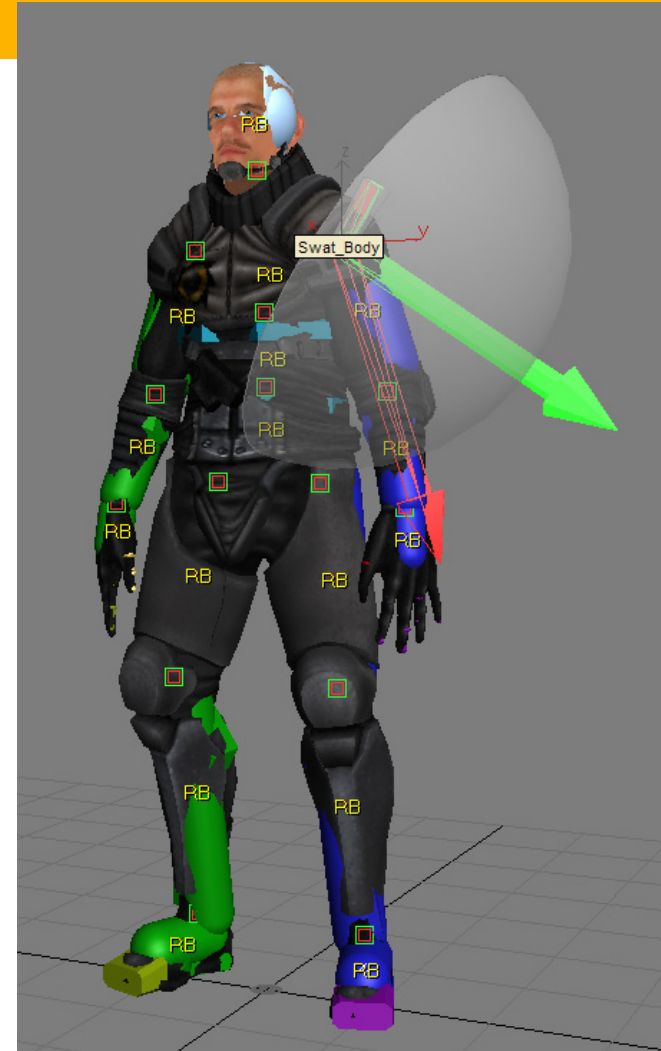
# Behavior Asset Flow





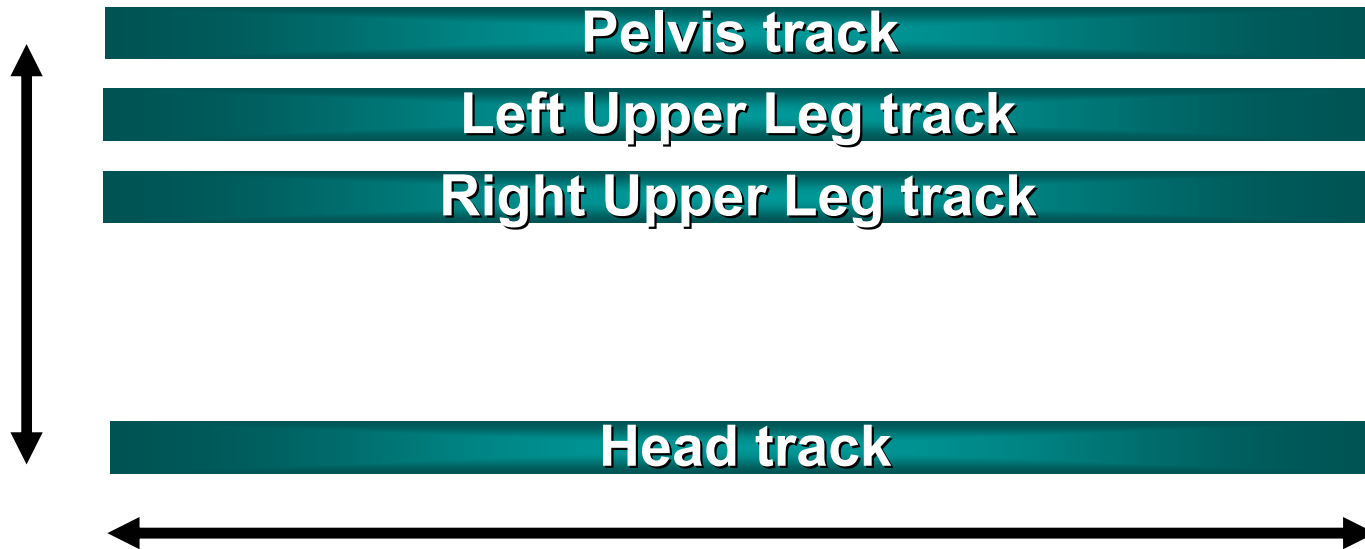
# What's in a Character Asset?

- A collection of:
  - Bones
  - Mesh
  - Mesh Bindings
  - Bind Pose



# What's in an Animation Asset?

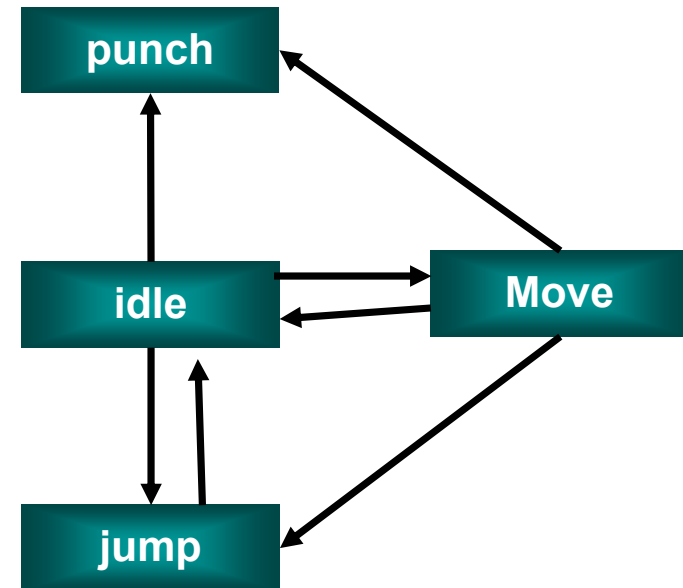
- A collection of compressed animation tracks (for an entire character)



# What's in a Behavior Asset?

➤ A Hierarchical Finite State Machine including:

- States, containing
  - Behavior Graph  
a.k.a. Motion Graph  
a.k.a. “Blend tree”
- Transitions (blends)
- Events
- Variables
- Sequences
- Gamepad Mapping



# HBT Demo

- Gamepad control in the tool
- Clip node features
- Blend node features
- Transition features
- Custom Modifiers



# Havok Behavior Tool – General Benefits

- Projects: Flexible Asset organization, sharing
- Direct asset flow from Maya, Max, XSI
- Rapid Character and Animation Preview in tool
- Rapid Behavior Authoring, Editing, Debugging, Preview
- Simulation and cache capture/scrubbing
- Sequence Authoring for Diagnostics
- Run-time Data serialization and Verification



# Roadmap

## ➤ Havok Behavior is available now

- Advanced animation functionality
- Custom Nodes
- Advanced Blending features
- Setup and Preview Physics/Animation
- Ragdoll, IK, Pose Matching
- Advanced Transition features



# Roadmap - Continued

## ➤ December 2007 and onwards

- Runtime optimizations across all platforms
- More procedural nodes
- Dynamic Attachments (Tool, already supported in SDK)
- Enhanced Physics workflow (terrains)
- Enhanced Asset Management features



# Thank You for listening ...

➤ Any Questions?

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