VR API Evolution, Generic Interfaces and Factoring

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OS VR

First Level

- Vendor-specific API/SDK
- Everything from one vendor, through one SDK
- Using more than what the vendor provides requires mix+match: complexity put on the app developer

Next Level: Some Genericity

- Commonly invented or re-invented
- Sometimes modeled on a specific implementation (vs. fully generic)
- Input devices numbered
- Convention (implied or explicit) on the meaning of those indices

Genericity and Factoring

- Concieve of the most generic form of a kind of device
- Devices often factor into multiple interfaces
  - Like a multifunction printer: One device is simultaneously a printer, a scanner, a fax machine…
- Try to keep device-specific aspects out of the generic interface.

Factoring Decisions

- Careful balance:
  - overly-generic (“series of bits!”)
  - too specific - if each device is its own generic interface, it’s no longer generic
- Guidance in judgement
  - What applications want this data, and what would it be interested in?
  - Would an application using an existing interface want to use this data that way too?
  - Can expose the same data on multiple interfaces

Back to SDKs: Configuration/Aliases

- Configuration often the most painful part of VR
  - But, for industrial systems, only done a few times in the life of the system, so it didn’t get a lot of attention
- Among others, the need to map/remap input devices
  - New device with different buttons
  - So, you assign names to the numbers

Aliases

- Existing practice -> New convention -> new practice
- So you get aliases like “Button0” or “YellowButton”
- Effect is that application developers take on complexity in internally mapping input at another level

The next step - as found in OSVR

- Aliases with no depth limit
- First level goes from number to device-specific meaning (button name, etc)
- Intermediate levels
- Application interacts with an interface with a semantic name
  - A name based on what it means in the app, not on what hardware provides the information

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See Path Tree slides for logical continuation

For additional information:

- OSVR developer portal
  - http://osvr.github.io

- Sensics – Founding contributor to OSVR, experts working in VR/AR for over a decade
  - http://www.sensics.com

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