Integrating Studierstube and DWARF

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Component-based approaches

- Studierstube
  - C++ classes on top of Open Inventor (OIV)
  - Object-oriented scene graph
    - Geometric information
    - Active interaction objects
  - Distribution of applications
    - Shared scene graph through DIV
- OpenTracker
  - Library operates on tracking data
  - Breaks up transformations defined by XML

Component-based approaches

DWARF

- Basic unit is distributed ***service***
  - needs, abilities
- Services bundled with hardware in units

Strong modular design

- Easily extended by adding new components

Adapters

- OpenTracker <-> DWARF
- Open Inventor <->DWARF

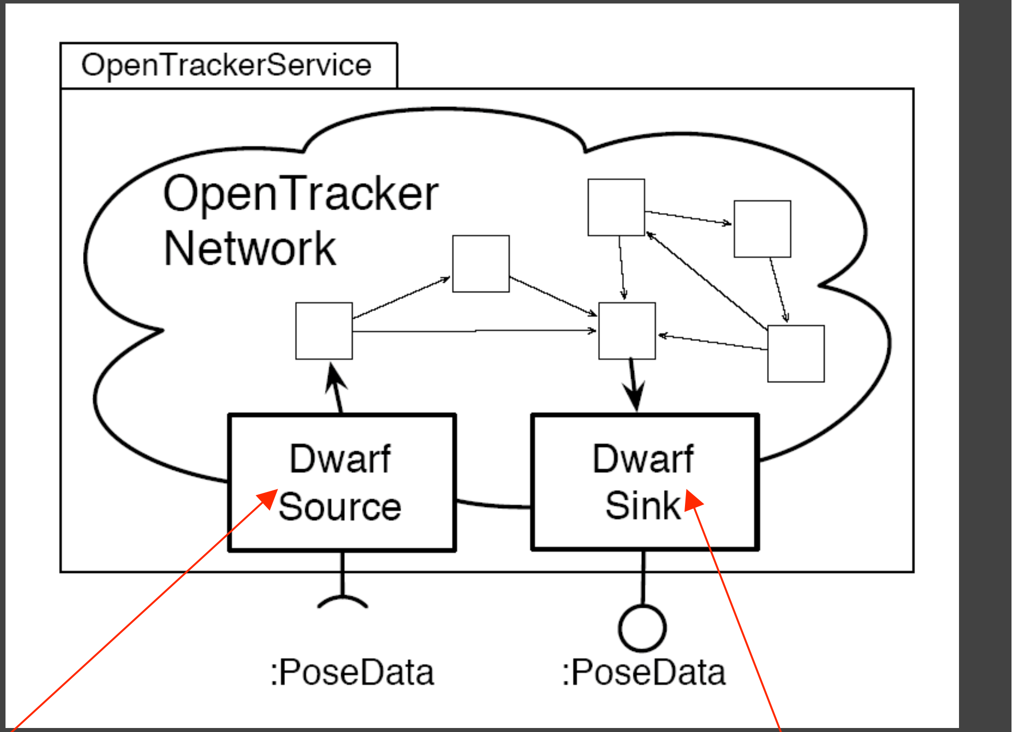
OpenTracker network as DWARF service

OpenTracker extensible by modules

- interface devices
- algorithms
- other frameworks

DWARF module

- Implements nodes
  - *DwarfSink*
  - *DwarfSource*
- Complete DWARF service

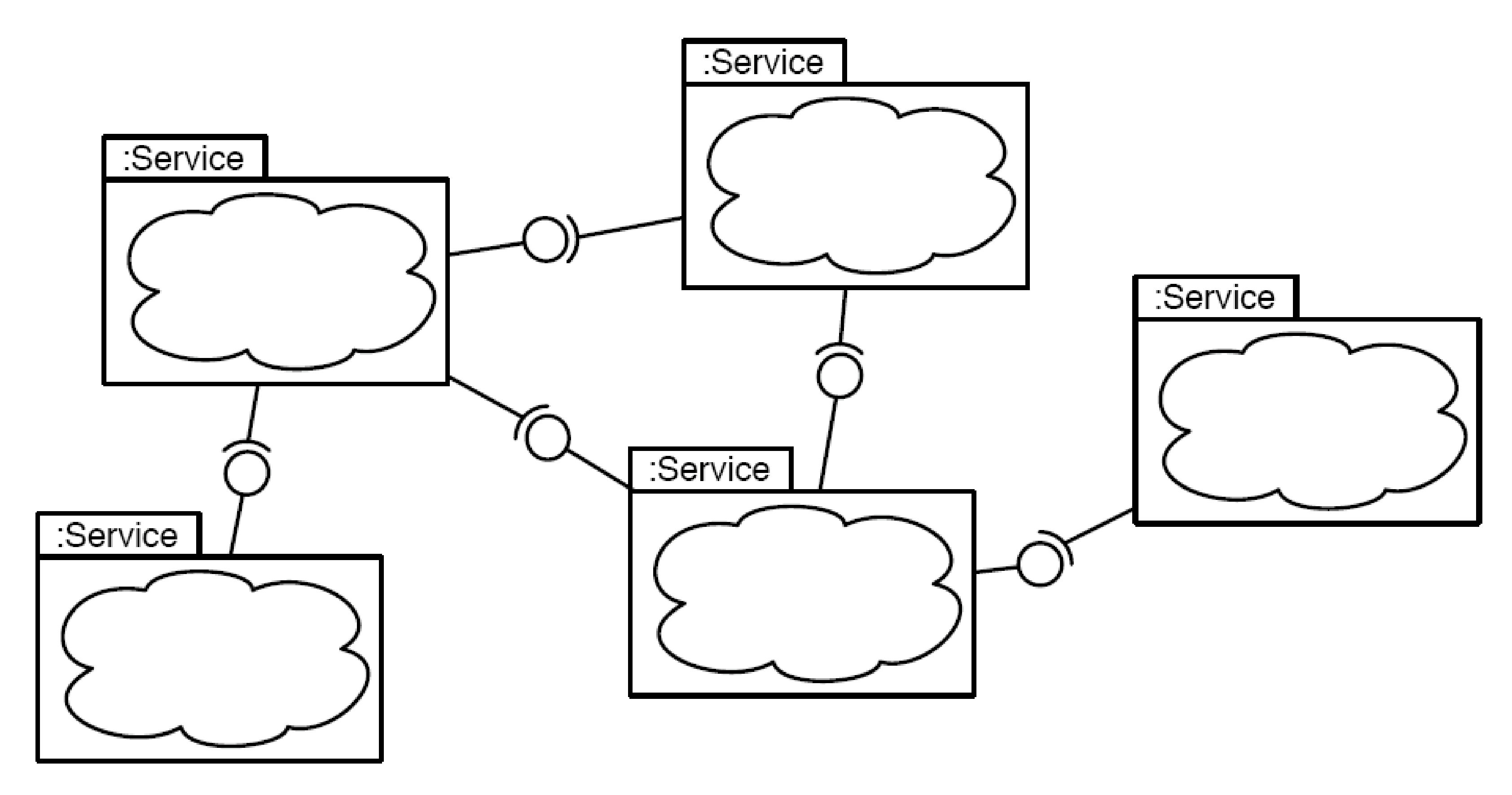


needs

abilities

DWARF connecting different OpenTracker networks

Smaller networks for dynamic scenarios



DWARF service embedded in an OIV scene graph

OIV supports nodes in a scene graph

- Contain *Fields* of predefined types

DwarfService node is single DWARF service

- *Fields* configure service parameters
- Contains lists of subnodes
  - needs, *DwarfNeed*
  - abilities, *DwarfAbility*

Studierstube can express DWARF service within scene graph

Conclusion

Wider choice of tools leads to more elegant solutions

Reduce overheads

- device drivers, filter objects realised only once

Existing local static setups

- Defined by OpenTracker
- Dynamically combined using DWARF
  - Large-scale Ubiquitous Computing Environments

Encourage interoperability with other AR frameworks

Thankyou

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