



# 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

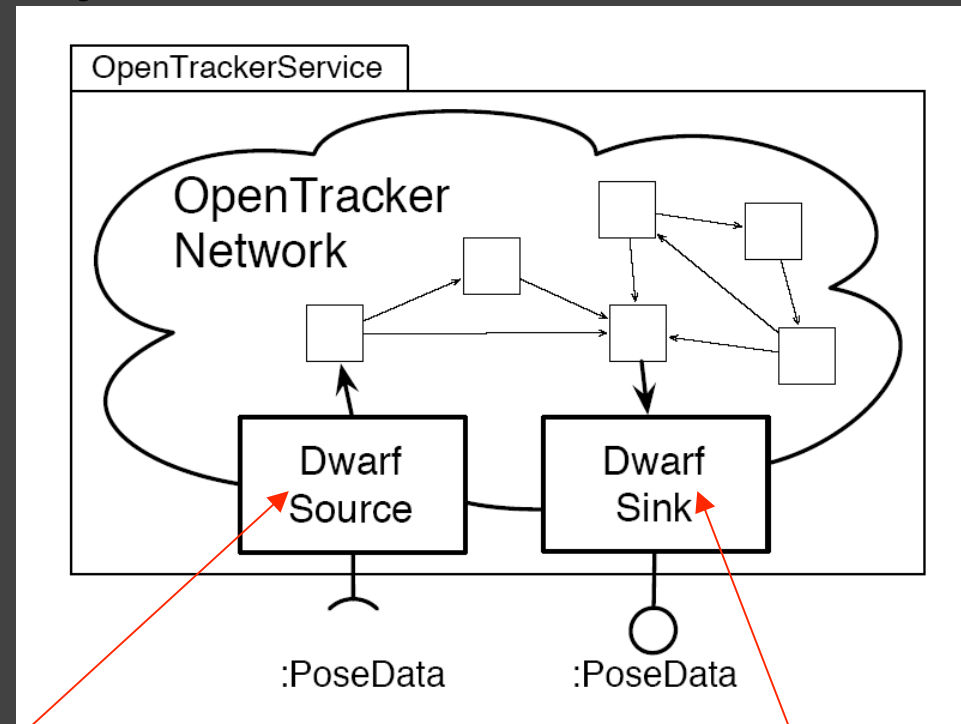
# OpenTracker network as DWARF service

OpenTracker extensible by modules

- interface devices
- algorithms
- other frameworks

DWARF module

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

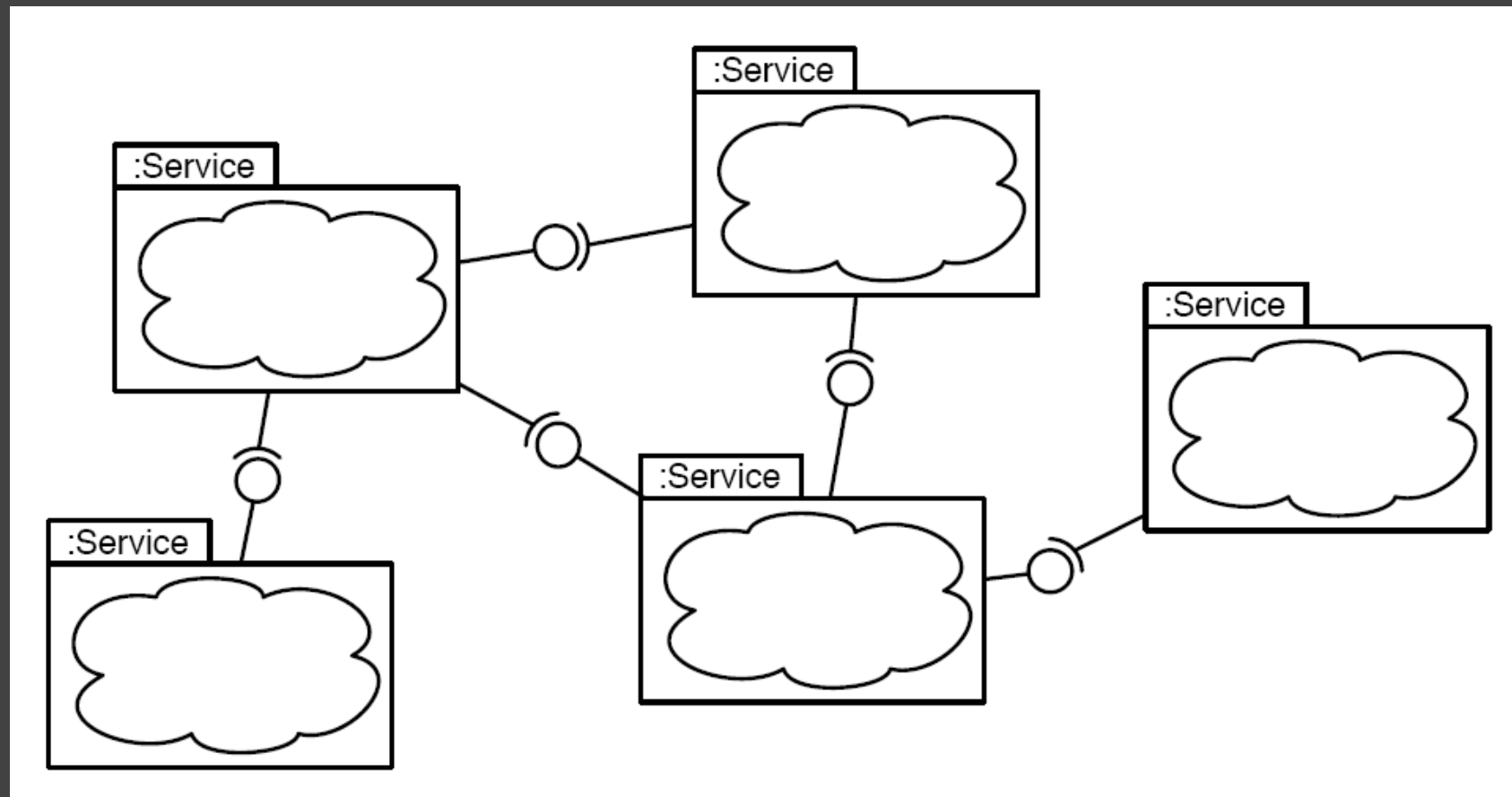


needs

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

