#### Bindings in AADL

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#### **Multi Level Architecture**

Logical: flows,...

Software: threads, processes, connections

binding

binding

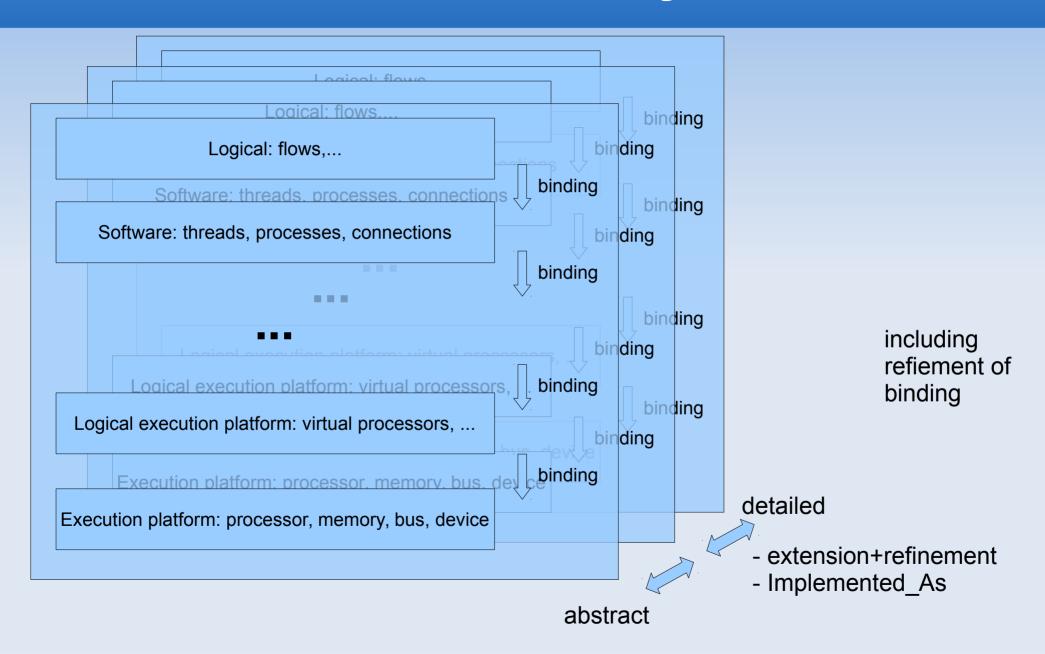
Logical execution platform: virtual processors, ...

binding

binding

Execution platform: processor, memory, bus, device

## Levels and Layers



# Binding

Consumer

requires

uses

resource

quantity, quality characteristics

uses != provides (reservation)

Provider

can provide

provides

Semantics of multiplicity ???

# **Analysis Targets**

- Resource consumption (AADL Core?)
- Reliability (EMV2?)

## **Memory Binding**

Consumer

requires

uses



quantity, quality characteristics

10 MB RAM, 5 MB ROM, TLB entries, ... ECC, duplication (?loss detection, loss probability?) access time

Provider

can provide

provides

memory system process

. . .

Semantics of multiplicity: one of, partly one partly another duplication-triplication

### **Process Binding**

Consumer

requires

uses

no abstract quantity

executon power

quantity, quality characteristics

functionality?

Provider

can provide

provides

only in terms of concrete executor

processor system virtual processor process (vm)

...

Semantics of multiplicity: one of, partly one partly another duplication-triplication parallelization

### **Connection Binding**

Consumer requires uses

communication quantity, protocol quality characteristics protocol QoS (loss probability, loss detection, ordering, ...)

Provider can provide provides

bus system virtual bus flow sw and hw components

. . .

Semantics of multiplicity: one of,

partly one partly another duplication-triplication parallelization

sequence, several sequences, diamond

## **Functional Binding**

Consumer requires uses

Functionality? quantity, quality characteristics protocol? QoS?

Provider can provide provides

system process

...

Semantics of multiplicity: one of, partly one partly another duplication-triplication parallelization

#### Thank you!

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