

# AUTOMATIC EXTRACTION OF *Suggestions for* POLICY RULES *out of de-facto configuration* FOR CONFIGURATION MANAGEMENT

Policy 2011

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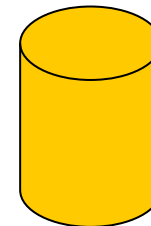
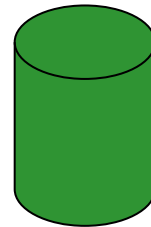
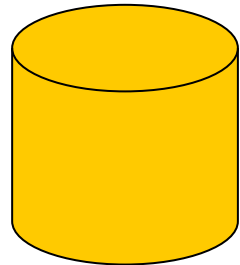
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Y. Carmel, I. Ish-Hurwitz, O. Zilinsky (HP Software)

June, 2011



# MOTIVATION

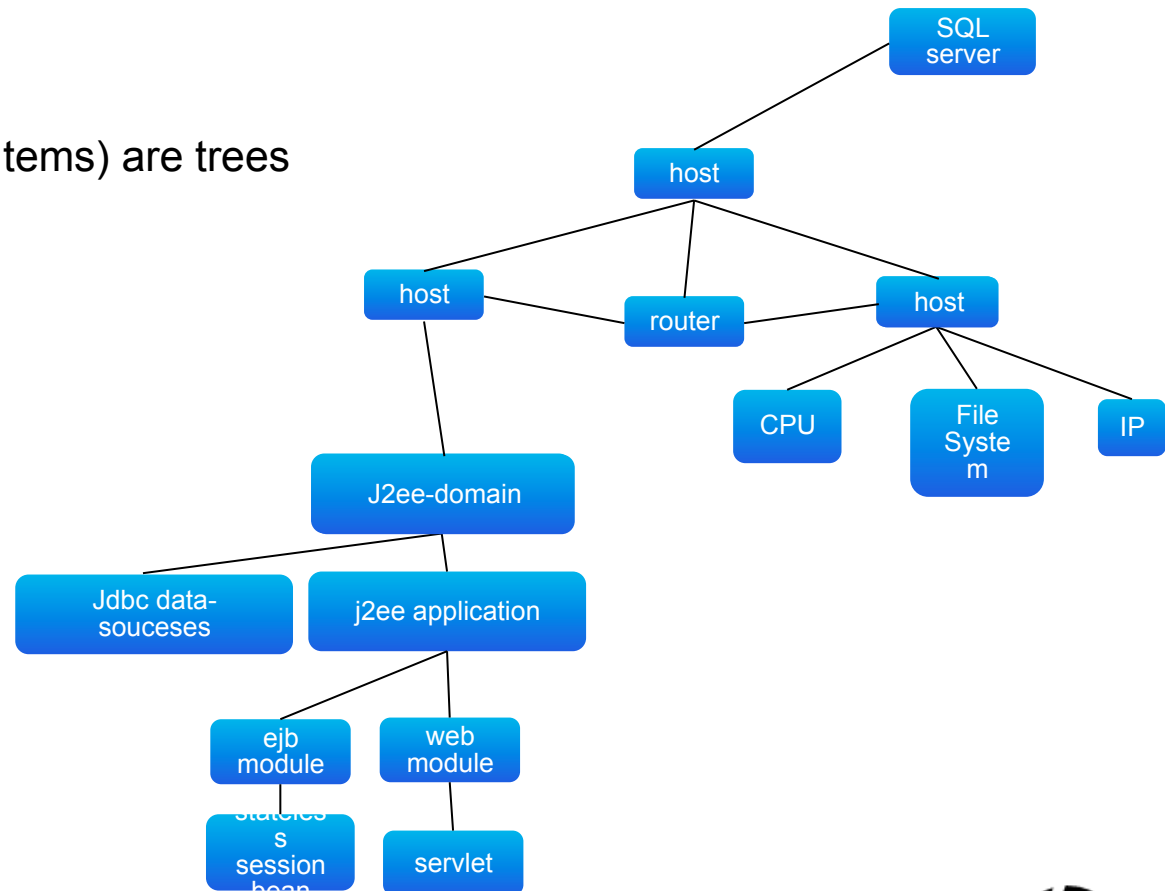
- Given a new IT world
- Configuration of similar construct is not known to be the same
- No configuration policy is set



# MOTIVATION

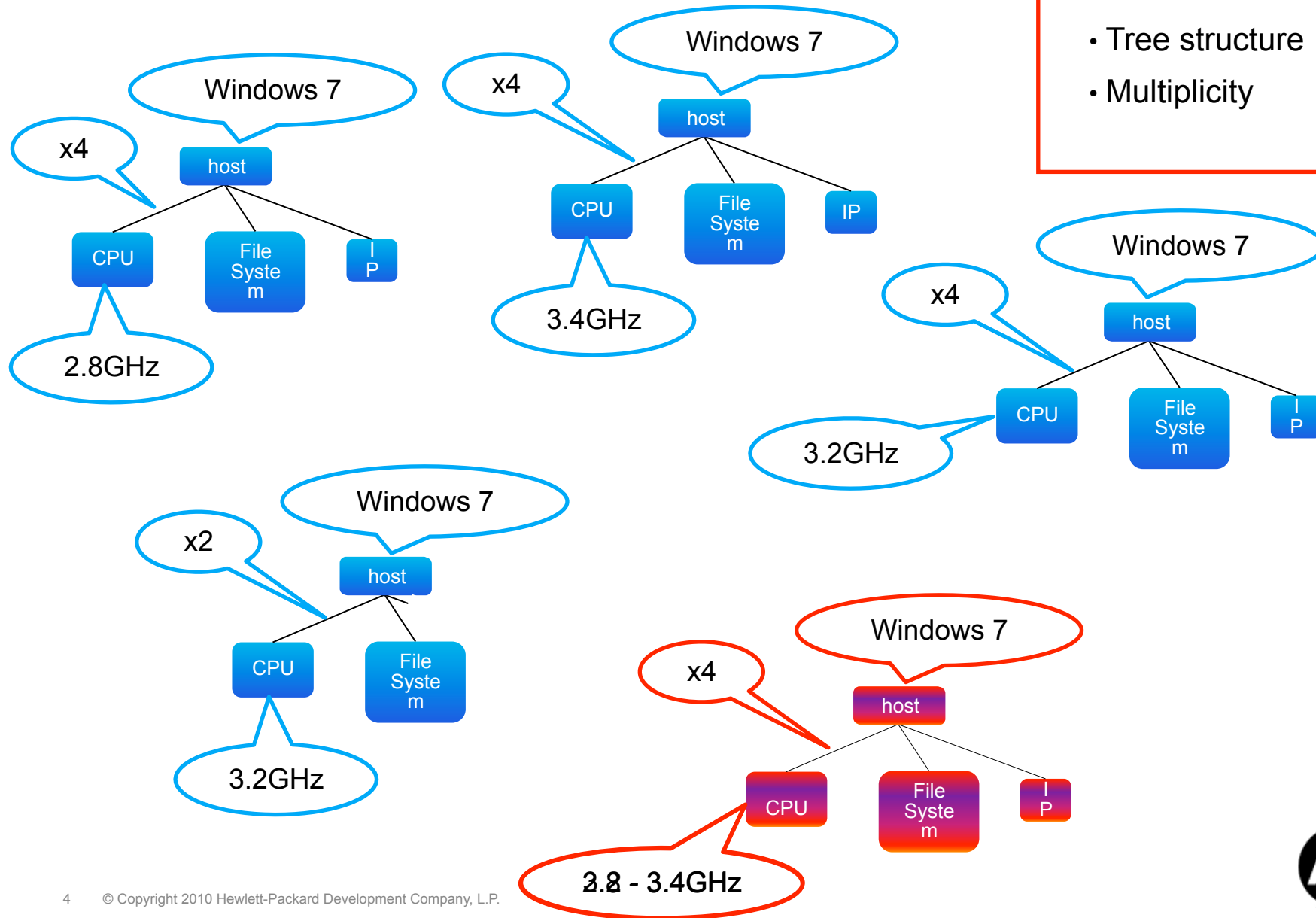
## IT world CMDB (Configuration Management DataBase):

- The CMDB is a graph
- Composite CIs (Configuration Items) are trees



# CONFIGURATION EXTRACTION

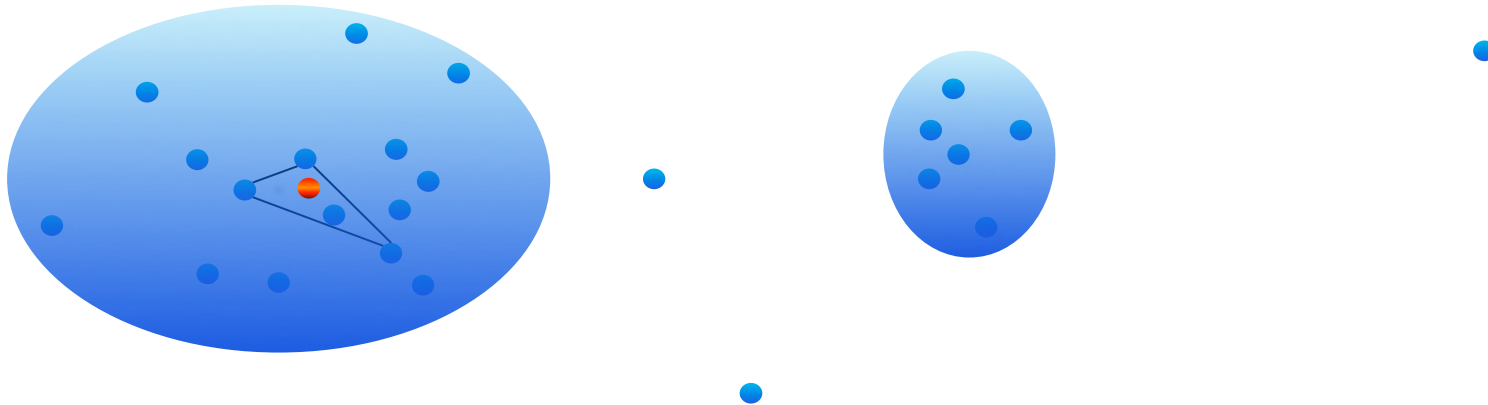
- Attributes
- Tree structure
- Multiplicity



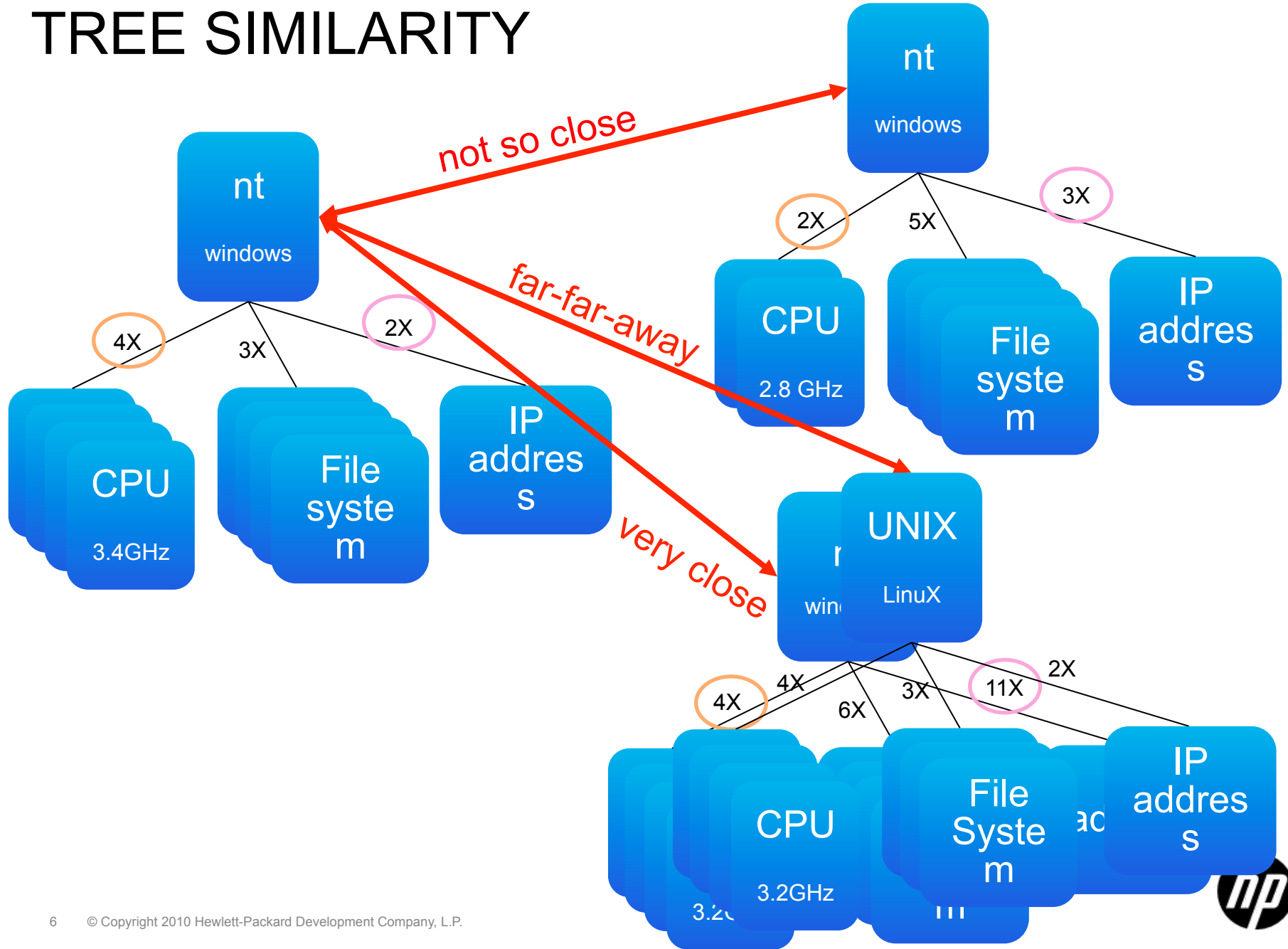
# CONFIGURATION EXTRACTION

Main scheme:

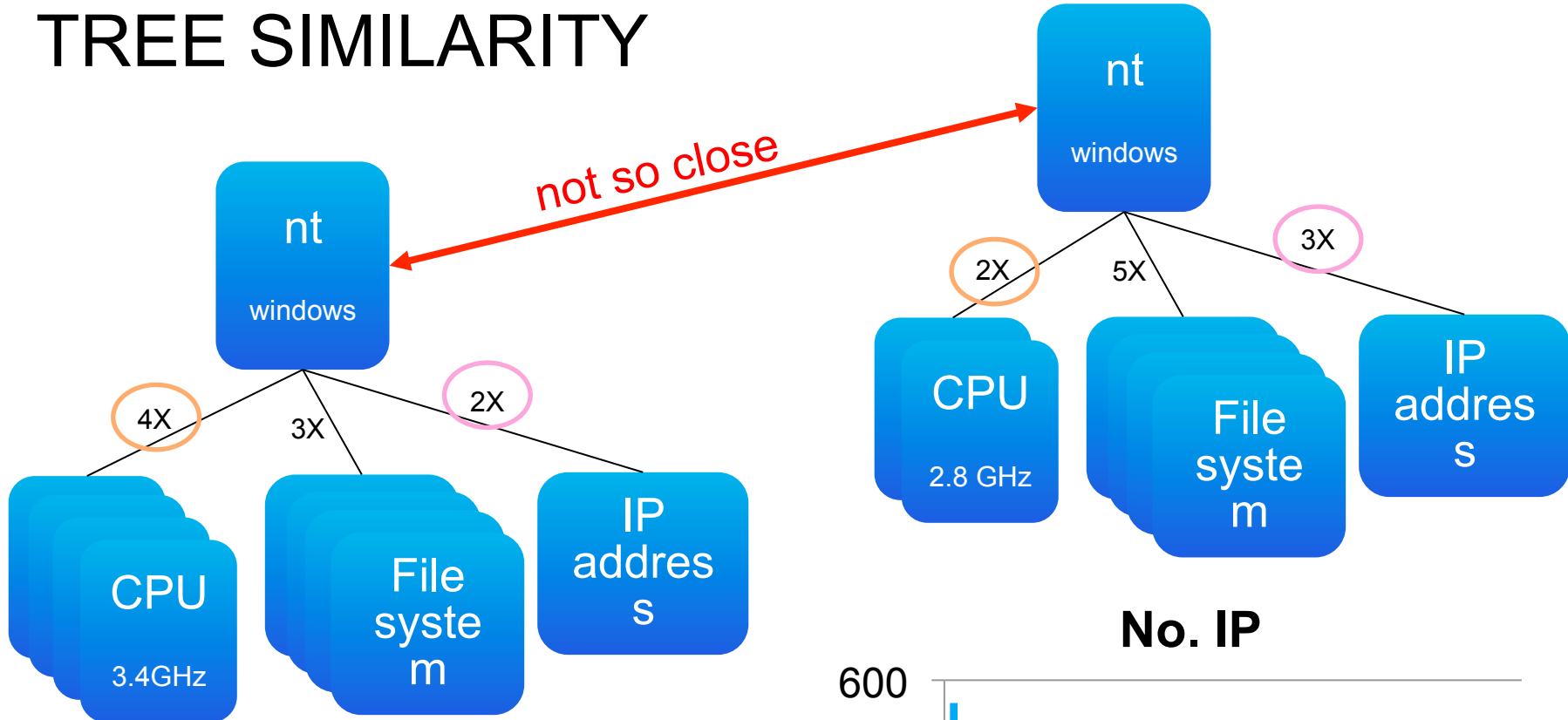
- Compute similarity between composite CIs
- Find frequent patterns of CIs
- Generate a suggested baseline policy



# TREE SIMILARITY



# TREE SIMILARITY



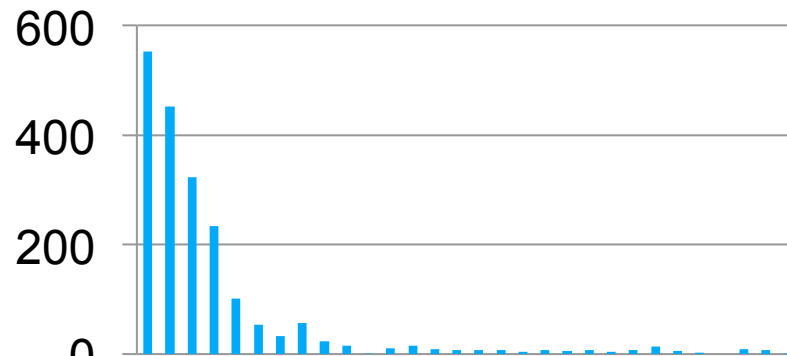
## No. CPU

Distance computed recursively:

- Compare distance between root nodes
- If leaf - finished
- Otherwise - compute best match between sets of children nodes

$$P_{CPU} = 0.9$$

## No. IP



$$P_{IP} = 0.07$$



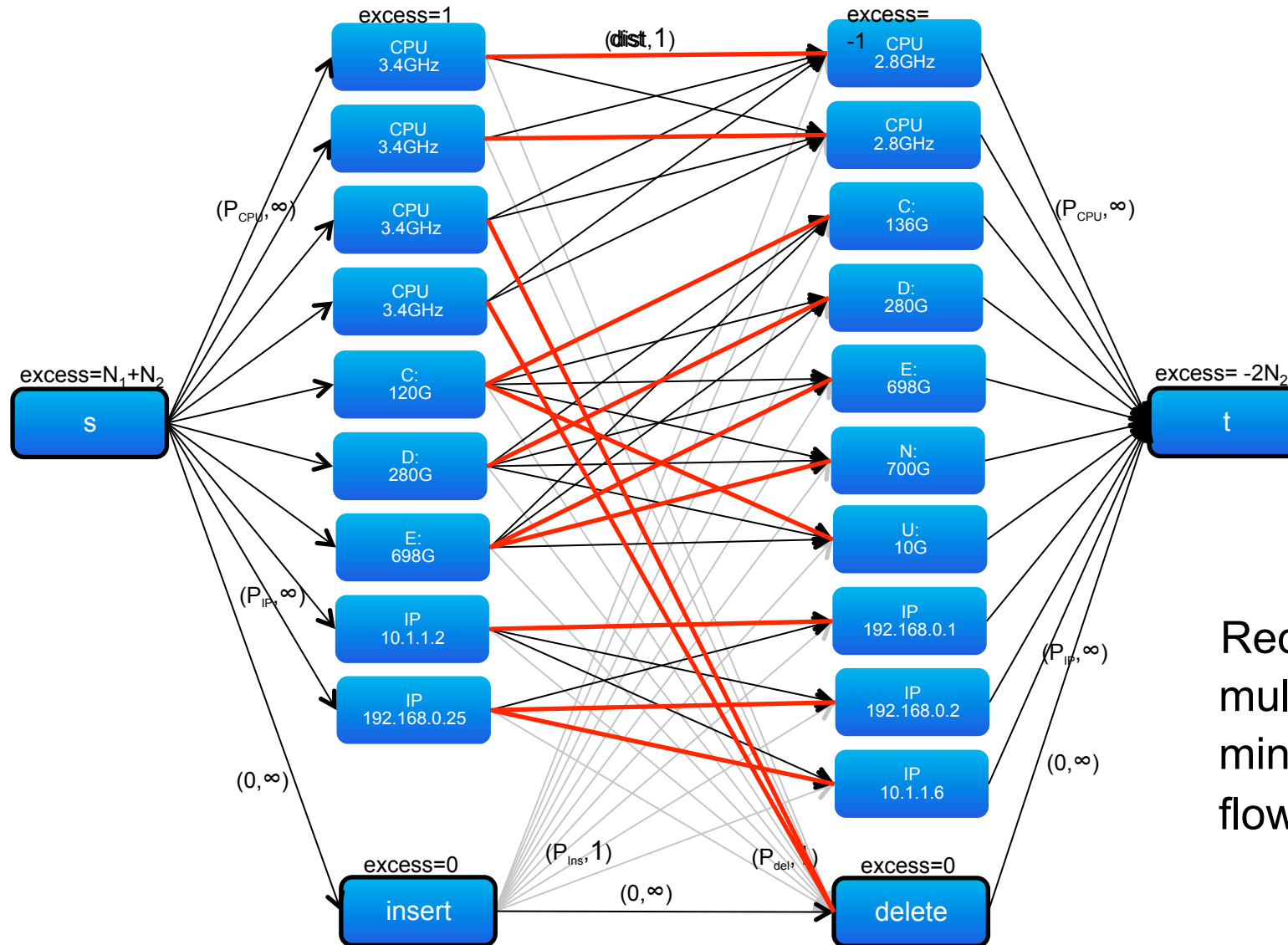
# TREE SIMILARITY





# TREE SIMILARITY

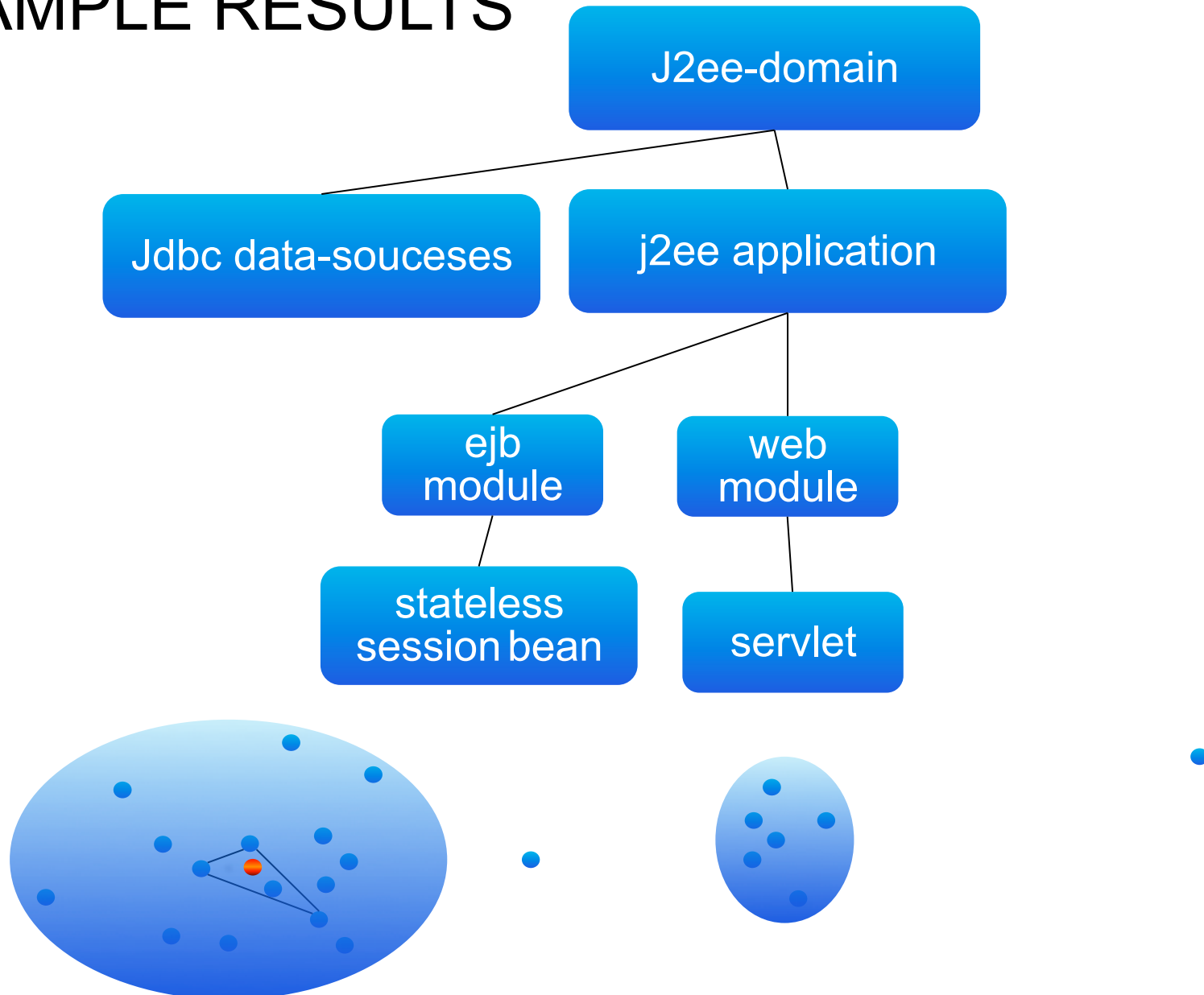
(cost, capacity)



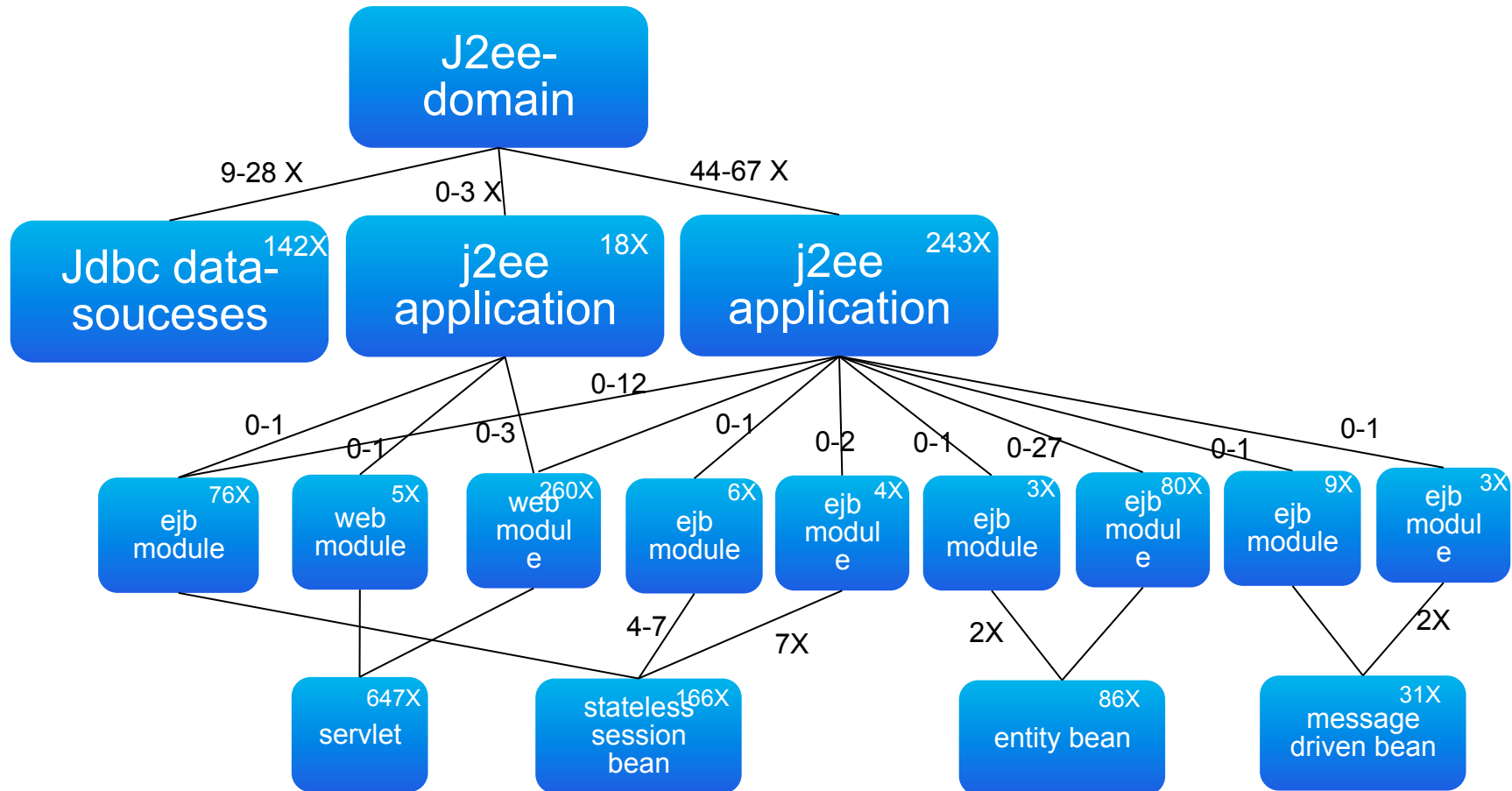
Reduction to multi-excess minimum-cost flow problem



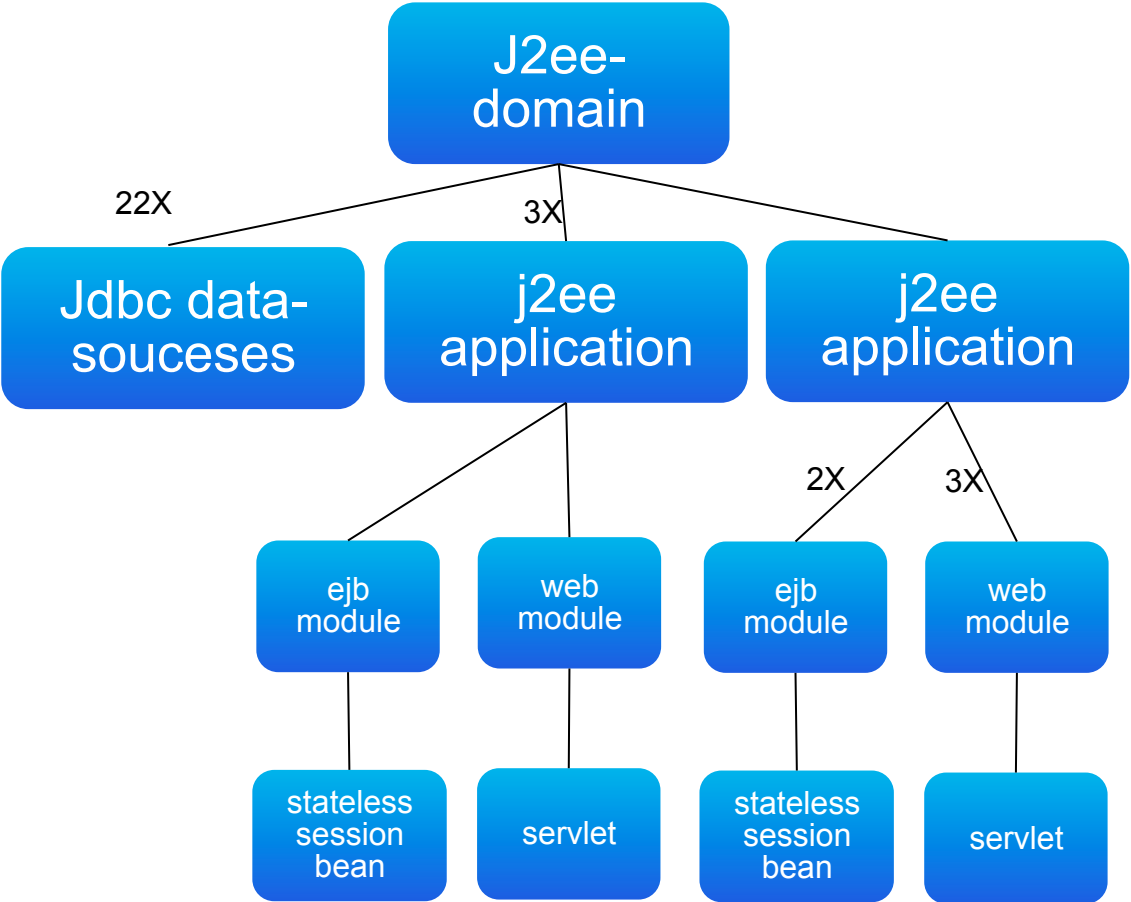
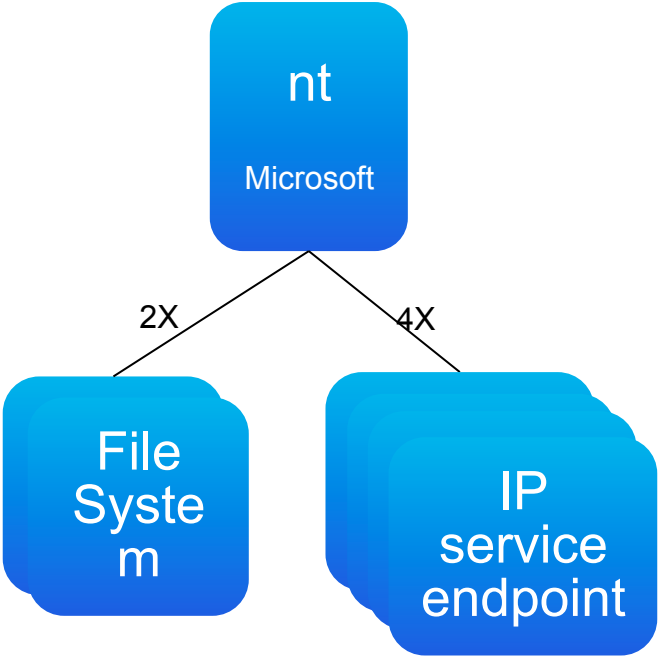
# EXAMPLE RESULTS



# EXAMPLE RESULTS – TREE CLUSTER HIERARCHY



# EXAMPLE RESULTS



# Q&A

