UML deployment diagrams

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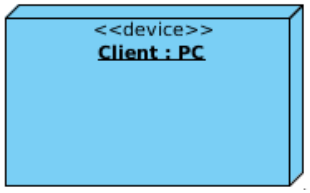
Overview

- High-level static view of a physical configuration of a system
- Hardware, software interaction
- Distribution of processing
- Nodes & artifacts, communication between nodes
- Nodes: HW, execution environments, etc.
- Artifacts: SW running on nodes

Where are deployment diagrams used

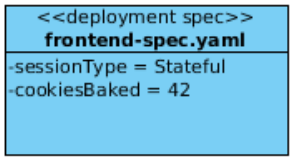
- Embedded systems (e.g. temperature control)
- Client-server systems (DB, backend, UI)
- Distributed systems

Node



- <<device>> nodes: computation resources
  - PC, server, etc.
- <<executionEnvironment>> nodes: SW hosting other SW
  - Java VM, DB execution environment, etc.
- In UML: “3D” box
- Nodes can be nested (VMs on a PC, etc.)
- Nodes can communicate (HW connection, protocol, etc.)
- Can use other UML relationships (aggregation, etc.)

Deployment Spec

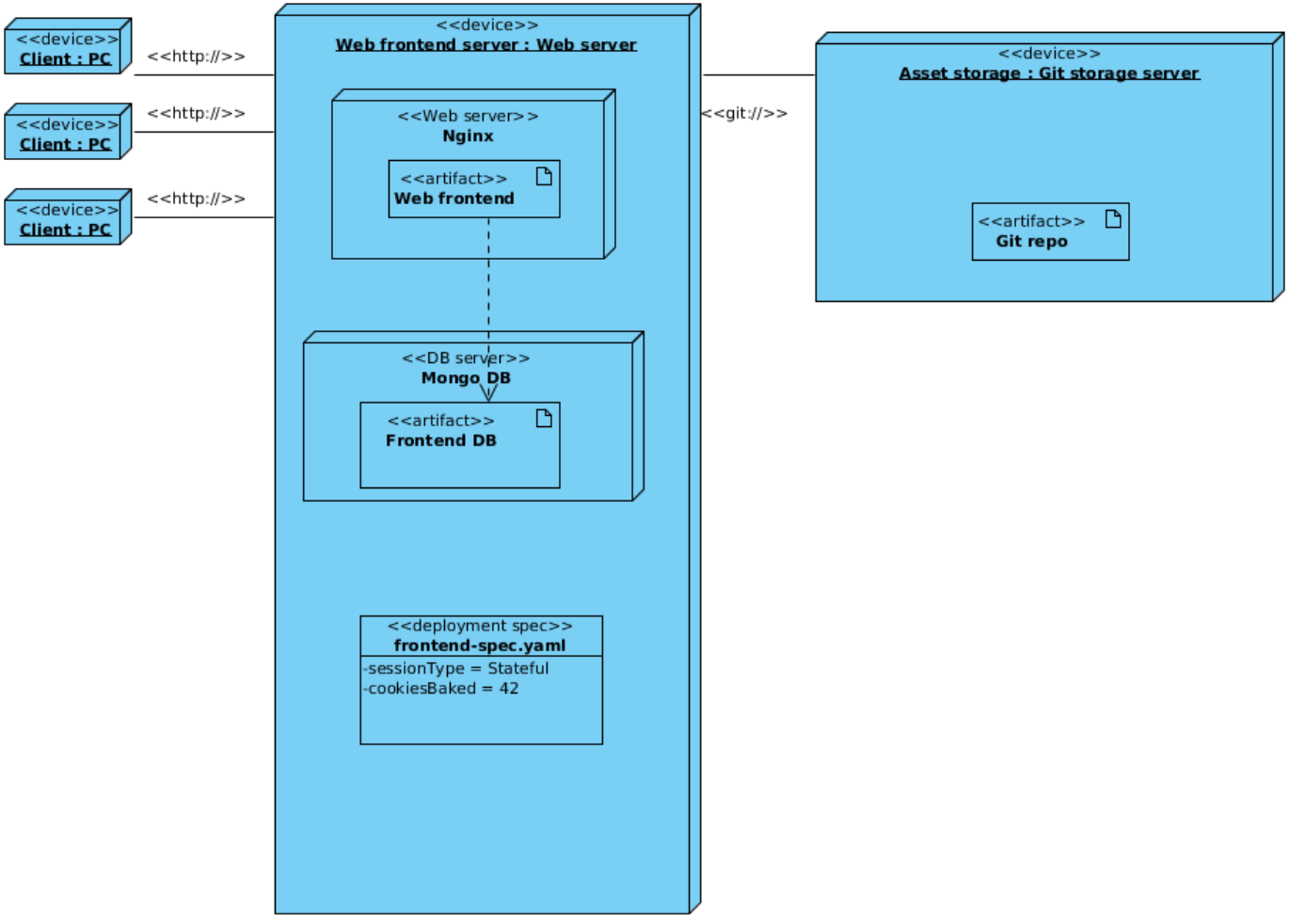


- Defines how a node operates (e.g. config file)
- Name & deployment properties
- Rectangle divided by line (properties below)

Artifact

- Deployed on a node
- Product of the SW development process
- Binary, document, script
- E.g; Web site, database table, VCS repo
- In UML: rectangle with an icon
- Again, can use other UML relationships

Example


<<device>>
Client : PC
<<http://>>
<<device>>
Client : PC
<<http://>>
<<device>>
Client : PC
<<http://>>
<<device>>
Web frontend server : Web server
<<Web server>>
Nginx
<<artifact>>
Web frontend
<<DB server>>
Mongo DB
<<artifact>>
Frontend DB
<<deployment spec>>
frontend-spec.yaml
-sessionType = Stateful
-cookiesBaked = 42
<<git://>>
<<device>>
Asset storage : Git storage server
<<artifact>>
Git repo

Why use deployment diagrams

- Getting a high-level overview, designing the rough architecture
- Consider how to deploy early in development
- Helps system installation/maintenance
- Not useful for simple applications (how to “deploy” VLC?)

Live example

More info

- http://www.uml-diagrams.org/deployment-diagrams.html
- http://www.visual-paradigm.com/VPGallery/diagrams/Deployment.html
- http://www.agilemodeling.com/artifacts/deploymentDiagram.htm
- http://www.google.com

Thank you for your attention!