

Analysis and Design of Large Scale Software II (SENG 401) Concept Mapping Application

<names>, <date>

SENG 401, <Group#>, Winter 2008

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Executive Summary

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1 Conceptual View

...

1.1 Global Analysis

...

1.1.1 Factor Table

...

1.1.2 Issue Cards

.....

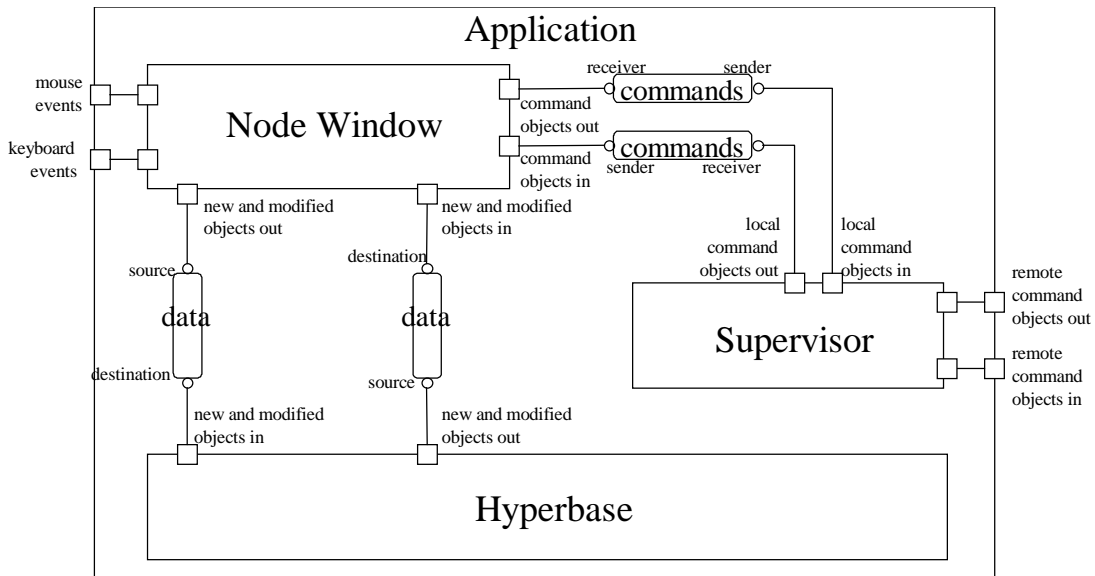
1.2 Conceptual Configuration

...

1.2.1 Application Level

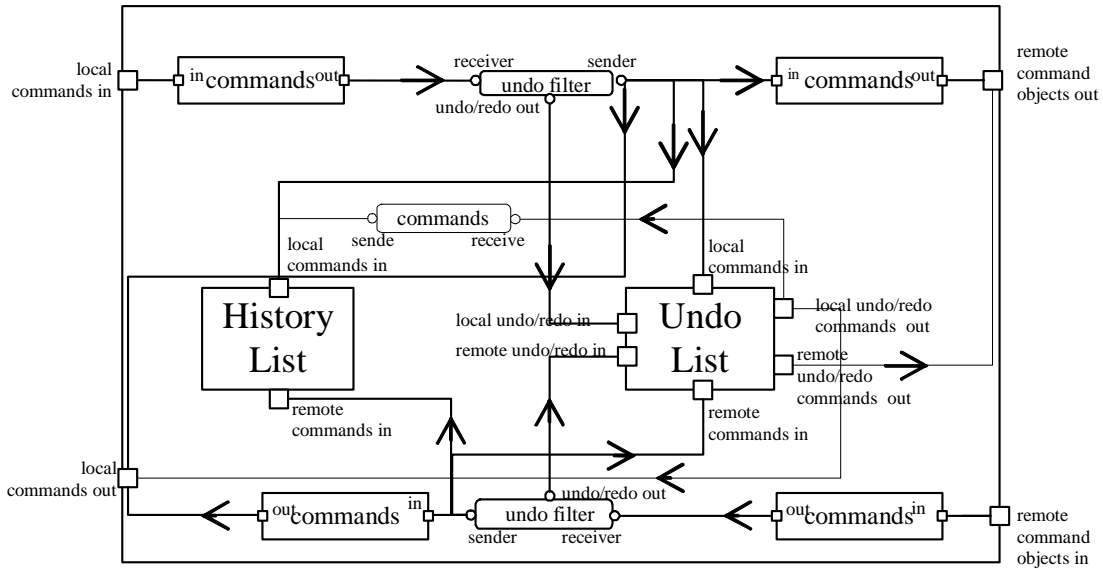
<provide a prose overview and be sure to explain all the components and connectors referencing any detailed definitions that you have included>

...



1.2.2 Supervisor Component

...



1.3 Global Evaluation

...

1.4 Resource Budgeting

...

2 Module View

...

2.1 Global Analysis

...

2.1.1 Factor Table (additional and changed factors)

...

Factor	Flexibility and Changeability	Impact

2.1.2 Issue Cards (additional and changed issue cards)

...

2.1.2.1 <title>
... Influencing Factors: ...
Solution: ...
Strategy: ...
Related strategies: ...

...

2.2 Central Design Tasks

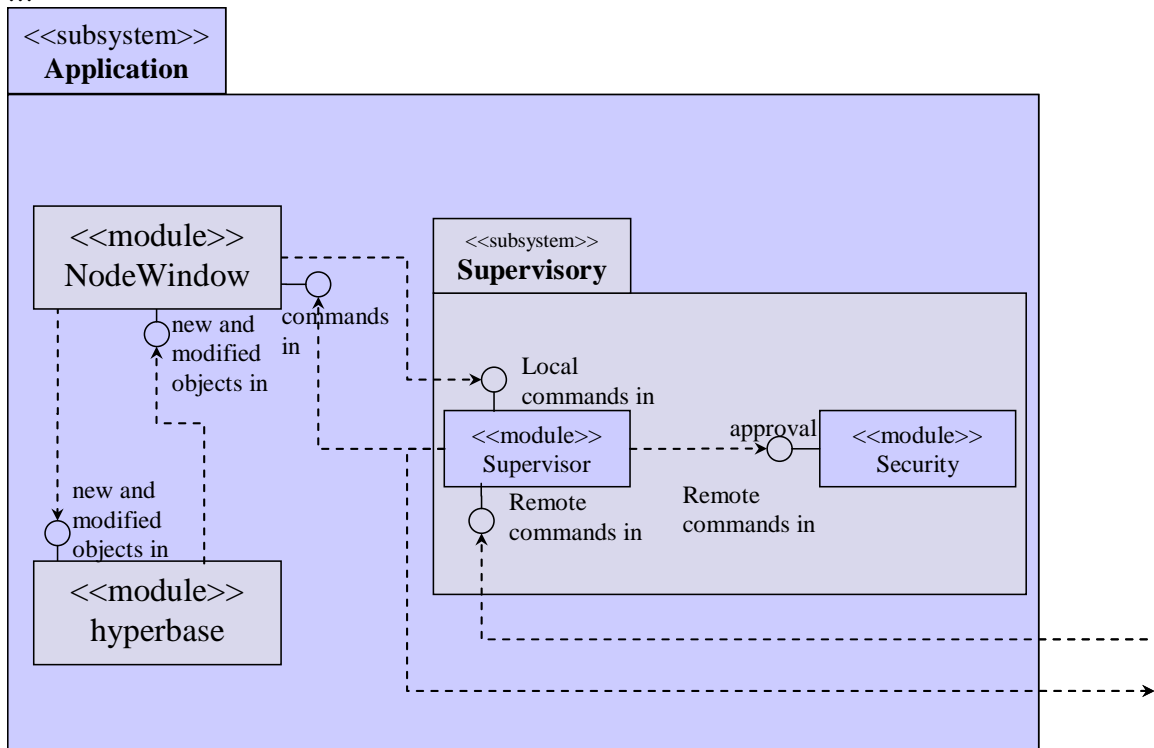
...

2.2.1 Mapping Conceptual Elements to Modules

...

2.2.2 Use Dependency Diagrams between Modules

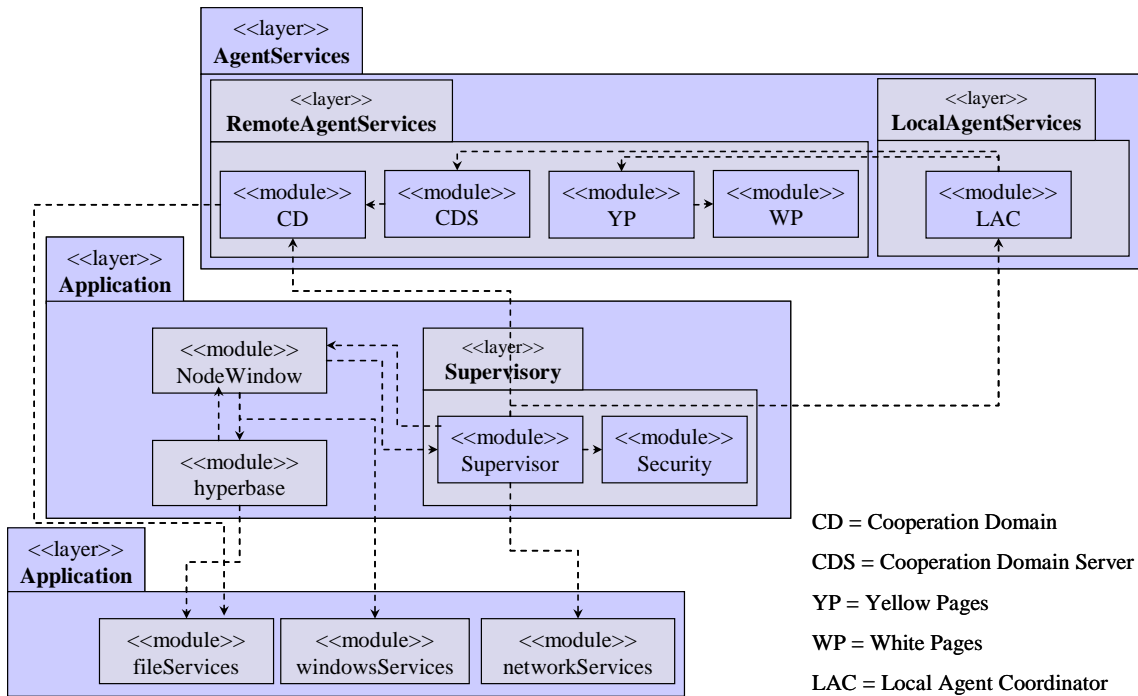
...



...

2.2.3 Diagrams Assigning Modules to Layers

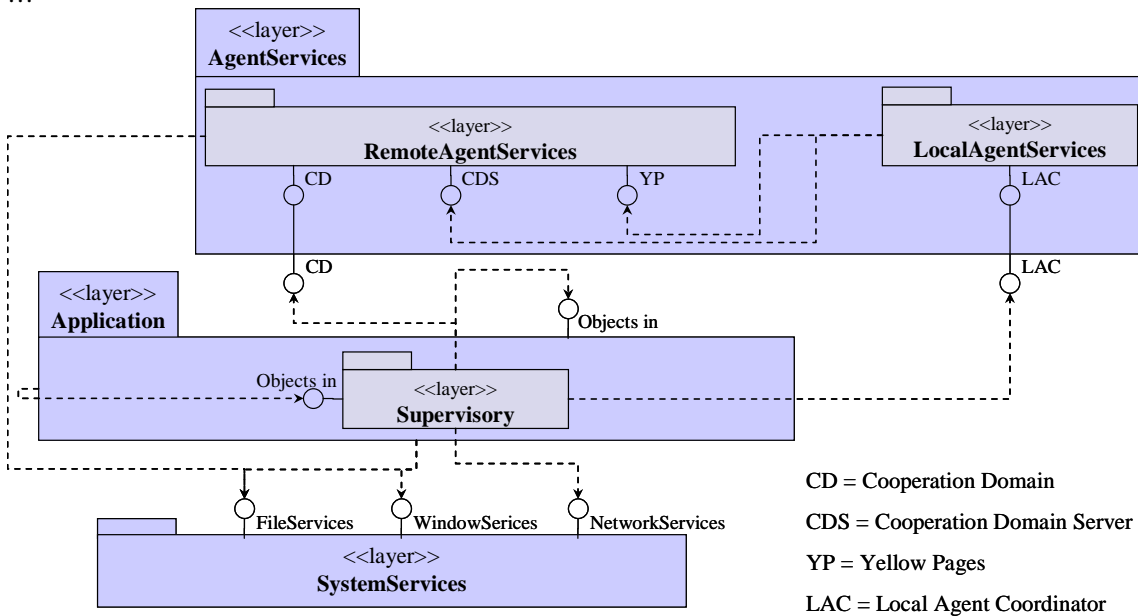
...



...

2.2.4 Use Dependency Diagram between Layers

...



...

2.2.5 Global Evaluation

...

2.3 Final Design Task: Interface Design

...

2.3.1 Interface Definition: Security/Approval

RegisterObject(id, pin, object, securitySpec) → status
Registers securitySpec for object provided that id and pin allow it. Succeeds only if this is the first registration of object. id will become the owner of object.

ChangeObject(id, pin, object, securitySpec) → status
Updates security with securitySpec for object provided that id and pin allow it.

DeleteObject(id, pin, object) → status
Deletes object's security registration provided id and pin allow it

ApproveOp(id, pin, command) → status
Returns OK iff id and pin are allowed to execute command.

status: {OK, denied, unknownObject, invalidSecuritySpec, invalidPin, wrongPin, unknownID}

...

3 Execution View

...

3.1 Global Analysis

...

3.1.1 Factor Table (additional and changed factors)

...

Factor	Flexibility and Changeability	Impact

3.1.2 Issue Cards (additional and changed issue cards)

...

3.1.2.1 <title>
<p>...</p> <p>Influencing Factors:</p> <p>...</p>
<p>Solution:</p> <p>...</p>

Strategy: ...
Related strategies: ...

...

3.2 Central Design Tasks

...

3.2.1 Platform Elements

...

Platform Element Type	Description
<<process>>	...
<<DLL>>	...
...	

...

3.2.2 Communication Paths

...

Communication Mechanism	Description
Socket	...
SC (System Call)	...
...	

...

3.2.3 First Approximation

...

Conceptual Component	Platform Element Type
Application	<<process>>
...	

...

3.2.4 Refinement

...

Module	Runtime Entity	Associated Attributes
Application	<<process>>	e.g., host type, replication, resource allocation (cf. Hofmeister et al., p 154)
...		

...

[Note: Host type = combination of CPU, vendor and OS that uniquely identifies a system (examples: i686-redhat-linux, i486-suse-linux, i686-pc-linux-gnu)]

3.2.5 Complete Execution Configuration

Figure 1 shows the modules contained in the runtime entities and the specific communication paths. ...

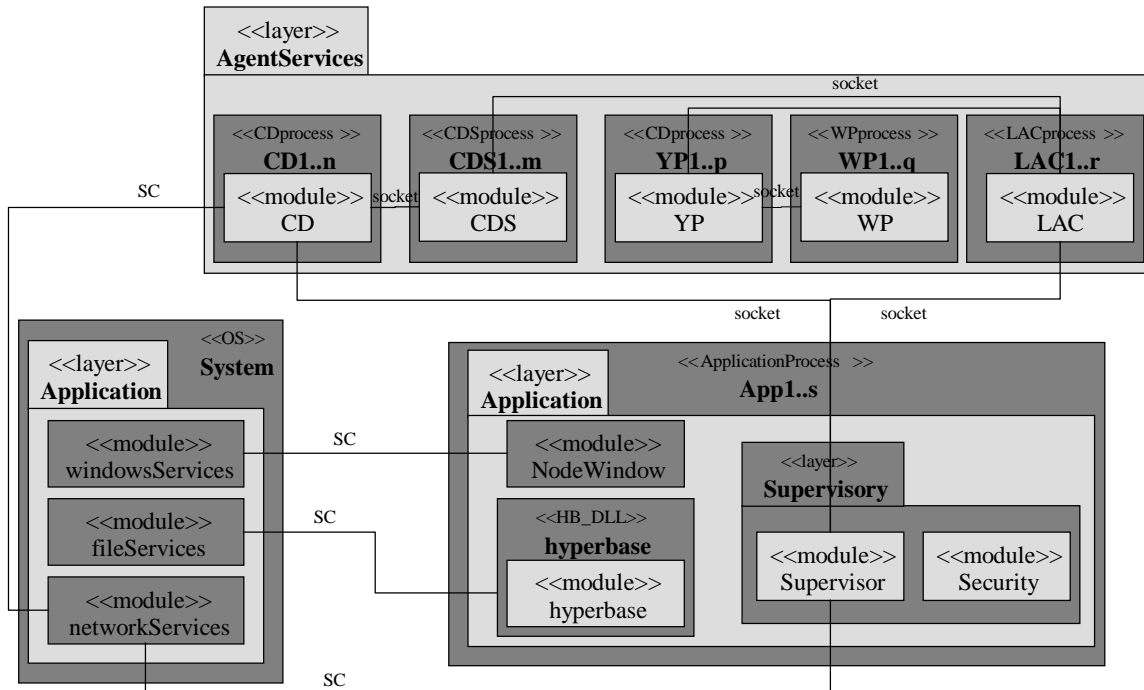


Figure 1: Detailed Execution Configuration Diagram

... Figure 2 shows an interaction diagram of the communication protocol that takes place over the socket communication between the LAC, CDS, and CD when a cooperation domain needs to be created. ...

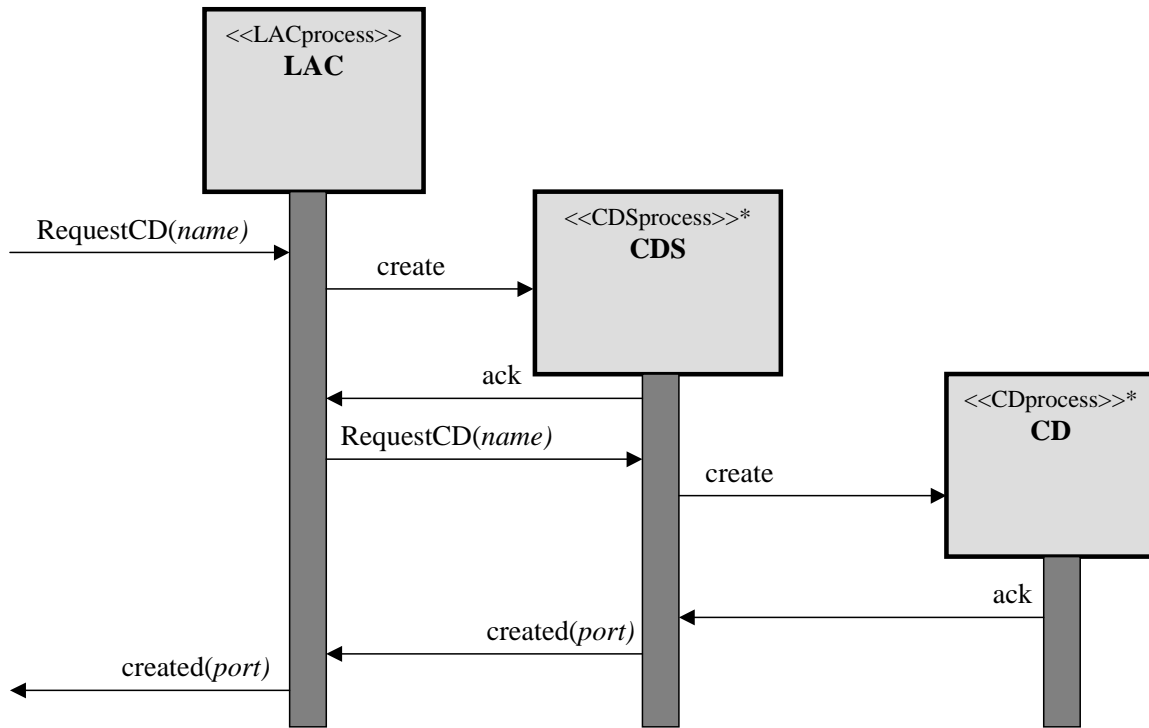


Figure 2: UML Sequence Chart (Interaction Diagram)

3.2.6 Global Evaluation

...

3.3 Final Design Task

...

3.3.1 Resource Allocation

...

(cf. Hofmeister et al., p. 153, Table 6.2 for examples)

3.3.2 Architecture Overview

....

Figure 3 describes the overall execution configuration for a single CPU that acts both as a "server" and as a "client" -- an "all-inclusive", "general purpose" machine. Many CPUs will not run all of these processes, but all will run an OS (of course). All machines that run ordinary agents (<<ApplicationProcess>>es) will run LACs, and all machines that run CDs will also run CDSs. There is exactly one LAC per CPU if there is a LAC, but there may be zero or more instances of all other processes.

The bold lines in Figure 3 indicate a process may communicate with the other process on another CPU. Unbolded communication lines indicate the communication is restricted to the same CPU.

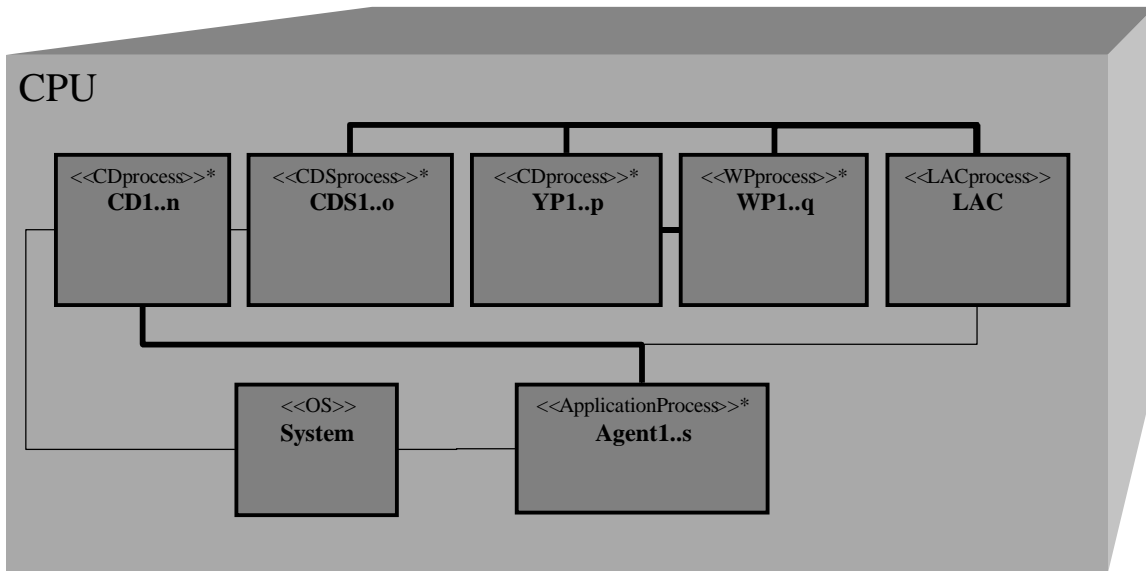


Figure 3: Overall Execution Configuration (Architecture Overview)

4 Code View

<future assignment>

A1: Glossary

...

A2: Summary of design decisions

...

A3: <Any other relevant appendices...>

...

References

(Gamma, Helm, Johnson & Vlissides, 1995) E. Gamma, R. Helm, R. Johnson, J. Vlissides (1995). Design Patterns. Addison Wesley. ISBN 0.201-63361-2.

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