

# jUCMNav Report



<http://www.softwareengineering.ca/jucmnav/>

Title:	WirelessIN-Integrated
Description:	Example model for separate GRL and UCM analysis of (3) architectural alternatives for the location of service logic and data in a simple wireless system.
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## UCM Scenario Groups documentation

### 1. UCMarchAlternatives:

1. ConnectionAccepted
2. ConnectionRejected

### Variables

1. authorized (boolean)

### Intentional Elements

1. Low Cost
2. High Performance: High performance of the system as seen by the service provider
3. Minimum Changes to Infrastructure
4. Maximum Hardware Utilisation
5. High Throughput
6. Minimum Message Exchange
7. Minimum Switch Load
8. Determine Data Location
9. Data in Service Control Point
10. Data in New Service Node
11. Service in Mobile Switch
12. Service in Service Control Point
13. Determine Service Location
14. Service Node
15. Service Nodes Ready For Sale
16. Install Service Node
17. Service Works

### Actors

1. Vendor
2. Service Provider
3. System
4. User

### Strategy Legend for Group "ArchAlternatives"

- 1:1-ServiceInSwitchDataInSCP
- 2:2-ServiceInSwitchDataInSNready
- 3:4-ServiceAndDataInSCP
- 4:3-ServiceInSwitchDataInSNnotReady
- 5:5-ServiceInSCPDataInSNnotReady
- 6:6-ServiceInSCPDataInSNready

	Strategy Evaluations					
	1	2	3	4	5	6
Vendor (A)	0	100	0	-100	-100	100
Service Provider (A)	46	31	-14	48	-12	-29
System (A)	100	100	100	50	50	100
User (A)	0	0	0	0	0	0
Low Cost	37	-25	37	45	45	-25
High Performance	50	50	-31	50	-31	-31
Minimum Changes to Infrastructure	75	-50	75	90	90	-50
Maximum Hardware Utilisation	50	50	50	50	50	50
High Throughput	50	50	-31	50	-31	-31
Minimum Message Exchange	100	100	-75	100	-75	-75
Minimum Switch Load	-100	-100	100	-100	100	100
Determine Data Location	100	100	100	0	0	100
Data in Service	100	0	100	0	0	0

Control Point						
Data in New Service Node	0	100	0	- 100	- 100	100
Service in Mobile Switch	100	100	0	100	0	0
Service in Service Control Point	0	0	100	0	100	100
Determine Service Location	100	100	100	100	100	100
Service Node	0	100	0	- 100	- 100	100
Service Nodes Ready For Sale	0	100	0	- 100	- 100	100
Install Service Node	0	100	0	100	100	100
Service Works	0	0	0	0	0	0



## System

System

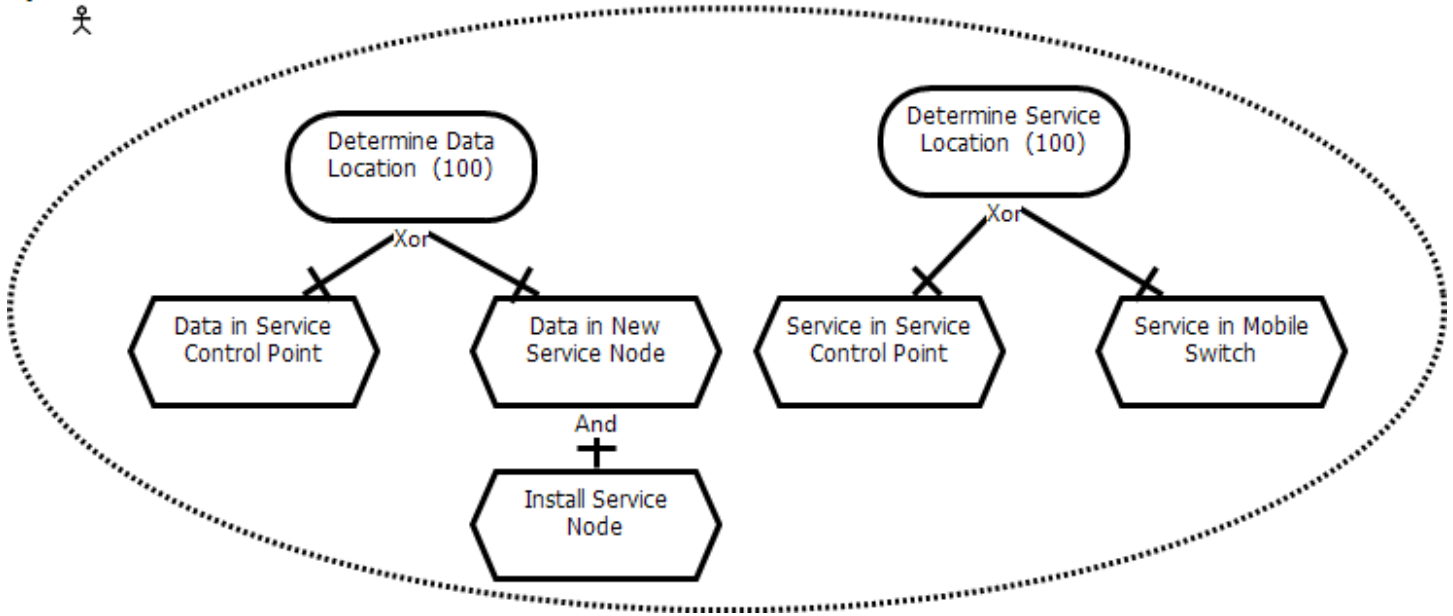


Figure 1 - System

## SvcAndDataInSCP

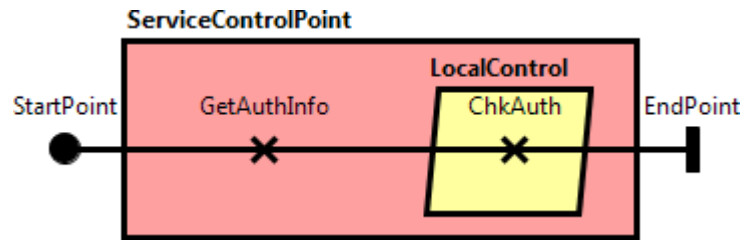


Figure 2 - SvcAndDataInSCP

## Responsibilities

GetAuthInfo: Gets the authorization information

ChkAuth: Checks (determines) the user location

## GlobalView

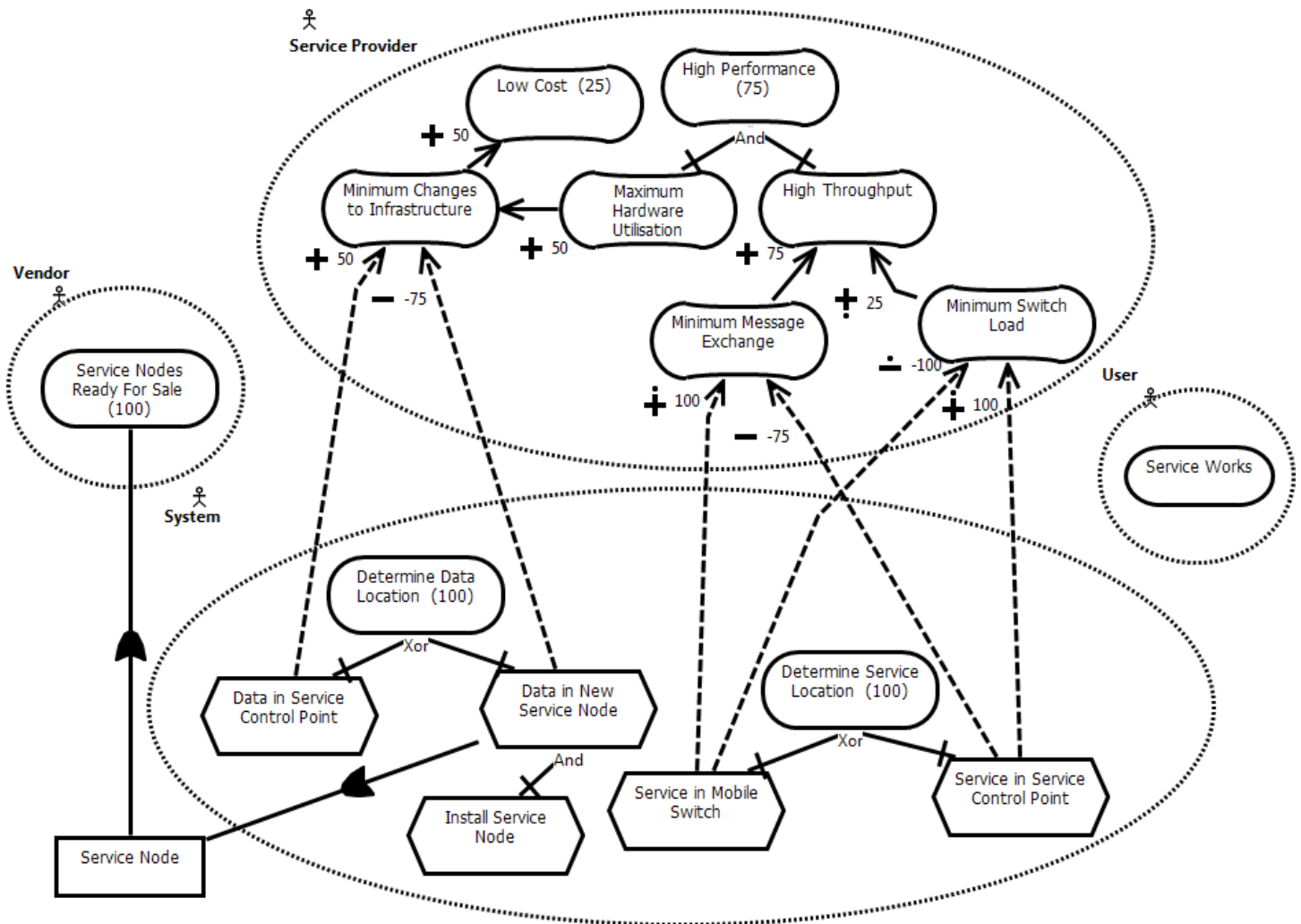


Figure 3 - GlobalView

## Intentional Elements

High Performance: High performance of the system as seen by the service provider



## RootScenario

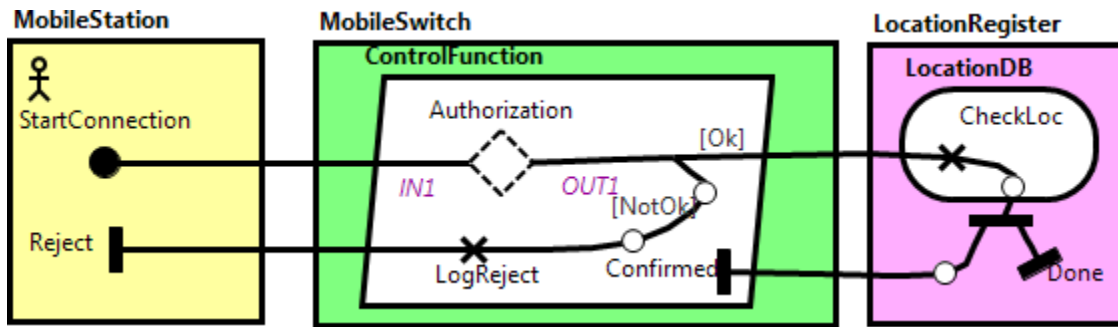


Figure 4 - RootScenario

## Description

This is a connection request scenario, which can be rejected.

## Responsibilities

LogReject

Expression: `_GRL_Service_Works = -100;`

CheckLoc: Location Registration Function (LHR)

Expression: `_GRL_Service_Works = 100;`

## Stubs

Dynamic Stub - Authorization

Plugin Map - SvcInSwitchDataInSCP

### Input Bindings:

`IN 1 <-> StartPoint`

### Output Bindings:

`OUT 1 <-> EndPoint`

### Precondition:

Expression: `_GRL_Service_in_Mobile_Switch = 100`

&&

`_GRL_Data_in_Service_Control_Point = 100`

Transaction: false

Probability: 1.0

Plugin Map - SvcAndDataInSCP

**Input Bindings:**

IN 1 <-> StartPoint

**Output Bindings:**

OUT 1 <-> EndPoint

**Precondition:**

Expression: \_GRL\_Service\_in\_Service\_Control\_Point = 100

&&

\_GRL\_Data\_in\_Service\_Control\_Point = 100

Transaction: false

Probability: 1.0

Plugin Map - SvcInSwitchDataInSN

**Input Bindings:**

IN 1 <-> StartPoint

**Output Bindings:**

OUT 1 <-> EndPoint

**Precondition:**

Expression: \_GRL\_Service\_in\_Mobile\_Switch = 100

&&

\_GRL\_Data\_in\_New\_Service\_Node = 100

Transaction: false

Probability: 1.0

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**Or Fork Description**

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[Ok] ==> authorized (probability: 1.0)

[NotOk] ==> !authorized (probability: 1.0)

## ServiceProvider

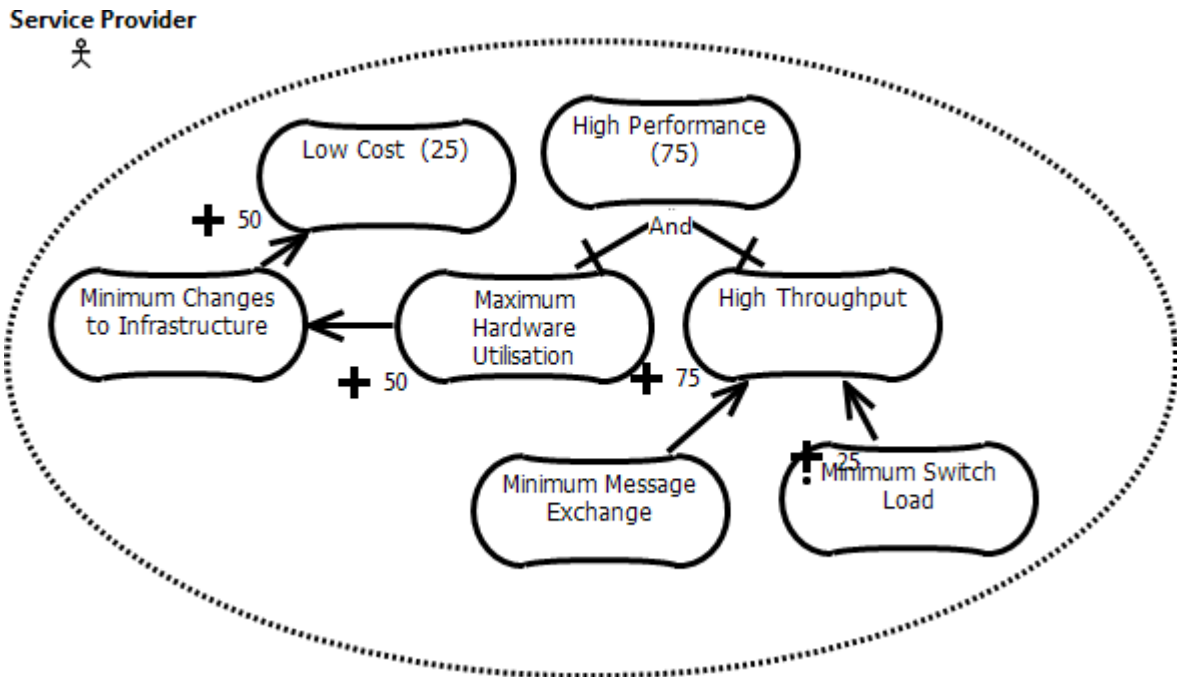


Figure 5 - ServiceProvider

## Intentional Elements

High Performance: High performance of the system as seen by the service provider

## SvcInSwitchDataInSN

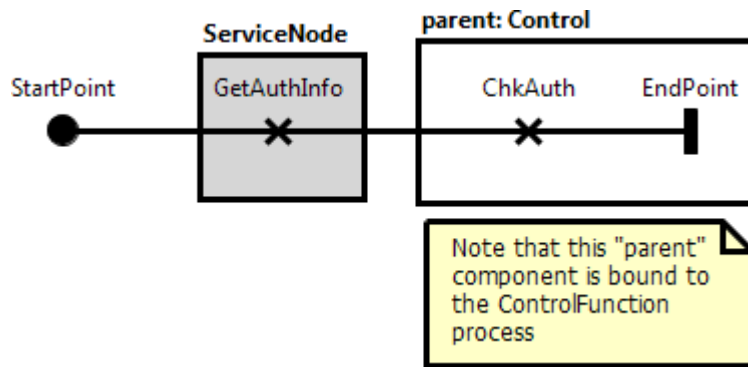


Figure 6 - SvcInSwitchDataInSN

## Responsibilities

GetAuthInfo: Gets the authorization information

ChkAuth: Checks (determines) the user location

## SvcInSwitchDataInSCP

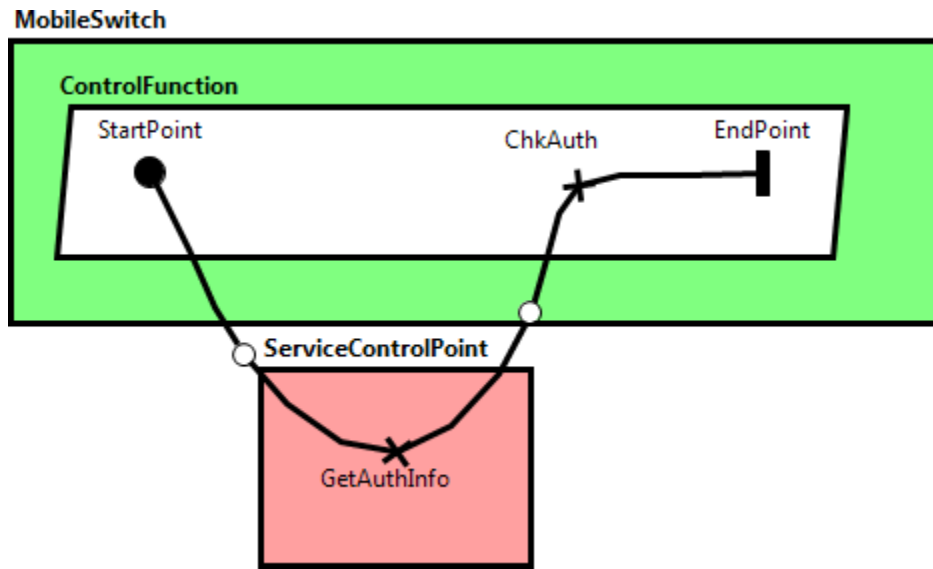


Figure 7 - SvcInSwitchDataInSCP

### Responsibilities

GetAuthInfo: Gets the authorization information

ChkAuth: Checks (determines) the user location