

Lot 3

ITS Station Management Core – Low Level Description

Michelle WETTERWALD
03/04/2012



Summary

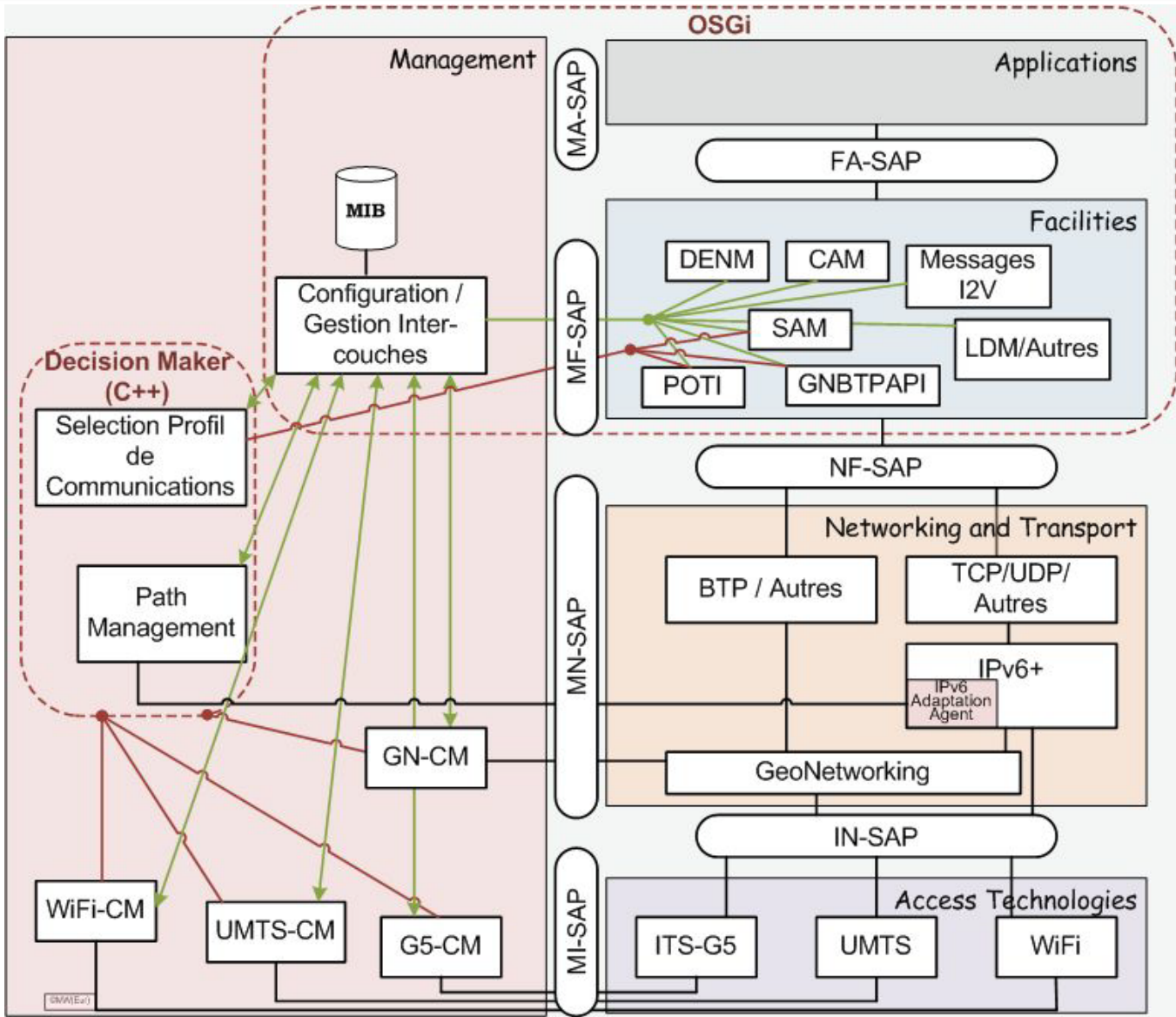
- References

1. Section 6.5 L221
2. 21/02/2012 Meeting Report
3. DriveC2X WP24 – Interface IF.MGMT.2

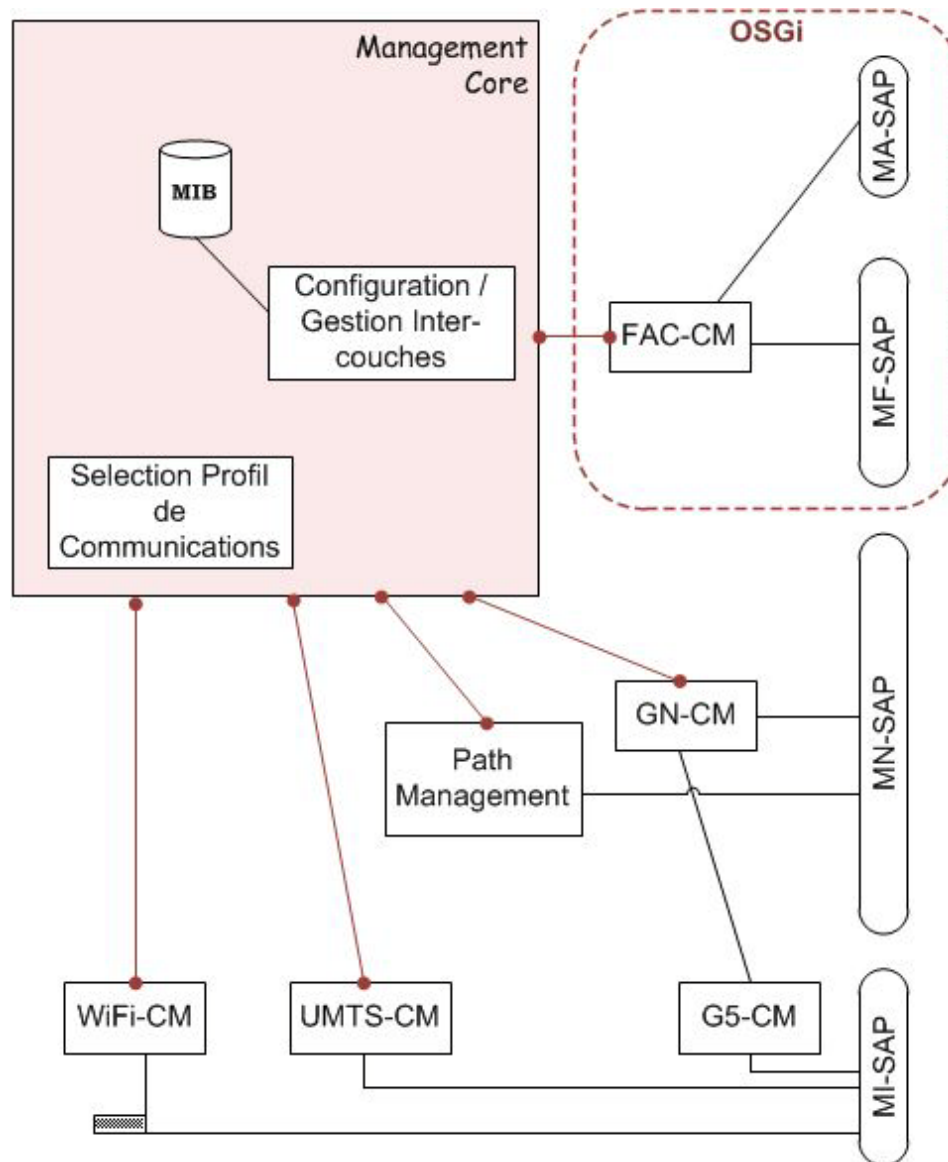
- Content

- Management High Level Schema
- Management Core detailed Schema
- Interfaces Description : GN-CM, FAC-CM, Path-MNGT, UMTS-CM, WIFI-CM
- Language used : C++
- Interfaces : Sockets UDP (address and ports in .conf files)

Global Schema



Detailed Schema



Interface to GN-CM and G5-CM

- Partner : HITACHI
- This interface is based on document [3].
- G5-CM is interfaced through GN-CM to avoid accessing the modem directly
- Messages and types supported
(“Event” actually means “Message”)
 - Location Event
 - 1.0 - Update Location Event
 - State Event
 - 4.0 Wireless State Event (used for G5-CM interface)
 - 4.1 Network State Event
 - Configuration Event
 - 3.1 Get Configuration Event (Request, Reply)
 - 3.2 Set Configuration Event (Continuous)
 - 3.3 Set Configuration Event (Bulk)
- Primitives Header as in [3]

State Event Parameters

- Wireless (per G5 channel)
 - Frequency, Bandwidth
 - Status, RSSI
 - Data rate, Transmit Power
 - Congestion level assessment
- GeoNetworking
 - Status
 - Statistics

Configuration Parameters

ITS Parameter Name	Parameter Type	DESCRIPTION / VALUES
itsStationType	0	1=UEV; 30=UBR;
itsStationSubType	1	0=public, 1=private
itsGnLocalAddrConfMethod	1000	0=auto, 1=managed
itsGnDefaultHopLimit	1001	Default Hop Limit (0-255)
itsGnMaxPktLifetime	1002	Upper Limit of Packet Lifetime (1-6300000) [ms]
itsGnMinPktRepetitionInterval	1003	Lower Limit of the Packet Repetition Interval [ms]
itsGnGeoBcastForwardingAlg	1010	0: Unspecified, 1: Simple, 2 Advanced (optional)
itsGnGeoUcastForwardingAlg	1011	0: Unspecified, 1: Greedy, 2: ETSI-CBF, 3: Revised-CB
itsGnTrafficClassRelevance	1020	0-7 [High 0 <--> 7 Low]
itsGnTrafficClassReliability	1021	0-3 [High 0 <--> 3 Low]
itsGnTrafficClassLatency	1022	0-3 [Low 0 <--> 3 High]
itsGnCbfMinTTS	1030	Minimum time-to-send [ms]
itsGnCbfMaxTTS	1031	Maximum time-to-send [ms]
itsGnMaxCommRange	1040	Theoretical radio communication range [m]
itsGnDefTxPower	1050	TxPower [in 1dBm steps]
itsGnDefBitrate	1051	Bitrate [in Mbps -- 3, 4.5, 6, 9, 12, 18, 24, 27]
itsGnDefChannel	1052	Channel number [176, 178, 180]
itsGnDefPriority	1053	Priority [0-7]
itsGnDefChannelBW	1054	BandWidth [MHz]
itsGnCommProfiles	1060	Reduced Communication Profile Table (BTP-Type, CH number)

Interface to FAC-CM

- Partner : ?? HITACHI ??
- This interface extends document [3].
- Primitives supported (“Event” actually means “Message”)
 - Configuration Event
 - 3.1 Configuration Available Event
 - 3.2 Get Configuration Event (Request, Reply)
 - 3.3 Set Configuration Event (Continuous, Bulk)
 - Profile Selection Event
 - 5.0 Select Profile Event (Request, Reply)
 - 5.1 Get Profile Event (Request, Reply)
- Primitives Header as in [3]

State and Configuration Parameters

Parameter Name	Parameter Type	DESCRIPTION / VALUES
ITS StationIdentifier,		
Management Layer AID		
supported versions of CAM and DENM		
ITS Station type,		
Vehicle Type,		
publicVehicleType,		
emergency ResponseType,		
CAM btpPort		
DENM btpPort		
Station status,		
Available exchange profile Table		
Communication Profiles Table		
Priorities and traffic classes Table		
Current Position (set of parameters including latitude, longitude, elevation)		
Speed (set of parameters)		
authorizedStation		
enabledInformationCentricForwarding		
LDM garbageCollectionInterval		

Profile Events Parameters

- Request
 - Transaction Number
 - Application Id (key to Exchange Profile Table)
 - Message AID (or Flow identifier)
- Reply
 - Transaction Number
 - Communication Profile ID

Interface to Path Management

- Partner : INRIA
- This interface extends document [3].
- Messages and types supported
 ("Event" actually means "Message")
 - State Event
 - 4.1 Network State Event
 - Configuration Event
 - 3.1 Get Configuration Event (Request, Reply)
 - 3.2 Set Configuration Event (Continuous)
 - 3.3 Set Configuration Event (Bulk)
- Primitives Header as in [3]

State Event Parameters

- UDP
 - Source Ports in operation
 - Destination Ports in operation
- TCP
 - Source Ports in operation
 - Destination Ports in operation
- IPv6
 - Packet payload size,
 - delay,
 - latency,
 - jitter,
 - number of hops to destination

Configuration Parameters (Table of paths)

Parameter Name	Parameter Key	DESCRIPTION / VALUES
Pathid		
Locator		
Anchor		
Next hop		
Group id		
Path reachability		
Path capabilities		
Path status		
Start time		
End time		

Interface to UMTS-CM

- Partner : FRANCE TELECOM
- This interface extends document [3].
- Messages and types supported
(“Event” actually means “Message”)
 - State Event
 - 4.0 Wireless State Event (used for UMTS-CM interface)
- Primitives Header as in [3]

State Event Parameters

- 3G modem
 - Interface Status (Connected/Not connected),
 - RSSI, BER, RSCP, ECN0,
 - LTE: RSRQ, RSRP,
 - MBR DL, MBR UL, PER GeoNetworking
 - Status

Interface to WiFi-CM

- Partner : ?? FRANCE TELECOM ??
- This interface extends document [3].
- Messages and types supported
(“Event” actually means “Message”)
 - State Event
 - 4.0 Wireless State Event (used for WiFi-CM interface)
- Primitives Header as in [3]

State Event Parameters

- WiFi Modem
 - Interface Status (Connected/Not connected),
 - Channel,
 - Data Rate,
 - RSSI,
 - PER,
 - Packet Transfer Delay