3GPP2 S.S0028-A

An Introduction

Jörg Schmidt
Motorola, Inc.
J.Schmidt@Motorola.com

Edwin Tse
Ericsson, Inc.
Edwin.Tse@Ericsson.ca

© **2003 Motorola, Inc.; Ericsson Inc.**

Table of Content

- **3GPP2 S.S0028-A: WWW …**
  - What, What Not, Where & Why
- **IRP Overview**
  - IRP Concept
  - Interface IRP vs. NRM IRP
  - IRP Development Principles
- **Details on Interface IRP's**
  - listing all w/ major IOC's, Notifications & Operations
- **Details on NRM IRP's**
  - listing all w/ UML's)
- **3GPP2 S.S0028-B & 3GPP2 S.S0028-C: What's Next**
  - R5 & R6 IRP's / Timetable
- **3GPP2 S.S0028: How to get involved**
  - Interface IRP's: 3GPP SA5 (or 3GPP2 TSG-S through liaison to 3GPP SA5)
  - 3GPP2 NRM IRP's: 3GPP2 TSG-S WG5
- **3GPP2 S.S0028-A: Lessons learned *(Input to SA5)***
  - Suggested IS improvements
  - Suggested SS improvement
  - XML Reconciliation
- **Q & A**

3GPP2 S.S0028-A: What …

- What it is:
  - A Delta specification
    - Incorporation 3GPP SA5 R4 Specifications by reference
    - Defining exceptions and additions ("delta's") as applicable to cdma2000
    - Providing cdma2000 specific specifications (e.g. 3GPP2 NRM IRP's)
- What is included:
  - 3GPP SA5 R4 Specifications
    - Requirements & Architecture (32.101, 32.102)
    - CM Requirements (32.600) & Naming Conventions (32.300)
    - Interface IRP's: Alarm IRP (32.111-x), Notification IRP (32.30x), Generic IRP (32.12x), BasicCM IRP (32.60x), BulkCM IRP (32.61x)
    - NRM IRP's: Generic NRM IRP (32.62x)
    - PM Concept and Requirements, including Measurement Report File Format & Conventions (32.401)
  - 3GPP2 NRM IRP's (including 3GPP2 XML definitions):
    - 3GPP2 Generic NRM IRP,
    - 3GPP2 Core NW NRM IRP,
    - 3GPP2 RAN NRM IRP

© 2003 Motorola, Inc.; Ericsson Inc.

S.S0028-A: What & Where …

- What is not included:
  - 3GPP SA5 Billing/Charging Specification (32.2xx)
  - 3GPP SA5 Measurement Specifications (32.403 / 52.402)
    - 3GPP2 specific measurement type definition activity in progress
  - 3GPP SA5 UMTS-specific NRM IRP's (32.63x / 32.64x / 32.65x)
  - 3GPP SA5 XML Specifications (32.615)
  - 3GPP SA5 CMIP Solutions Set Specifications (32.3x4, 32.6x4)
    - Currently lack of interest in 3GPP2 community
- Where it can be found:
  - 3GPP2: http://www.3gpp2.org
  - 3GPP2 OAM&P Specifications: http://www.3gpp2.org/Public_html/specs/index.cfm
    - *3GPP R99-based specification is S.S0028*
    - *3GPP R4-based specification is S.S0028-A*
    - *3GPP R5-based specification will be S.S0028-B*
  - 3GPP2 TSG-S Contributions (from year 2003 meetings): ftp://ftp.3gpp2.org/TSGS/Working/TSG-S_2003/

© 2003 Motorola, Inc.; Ericsson Inc.

S.S0028-A: Why is it important

3RD GENERATIC
PARTNERSHIP
PROJECT 2
"3GPP2"

3GPP

TSG-SA5

Alignment !

3RD GENERATION
PARTNERSHIP
PROJECT 2
"3GPP2"

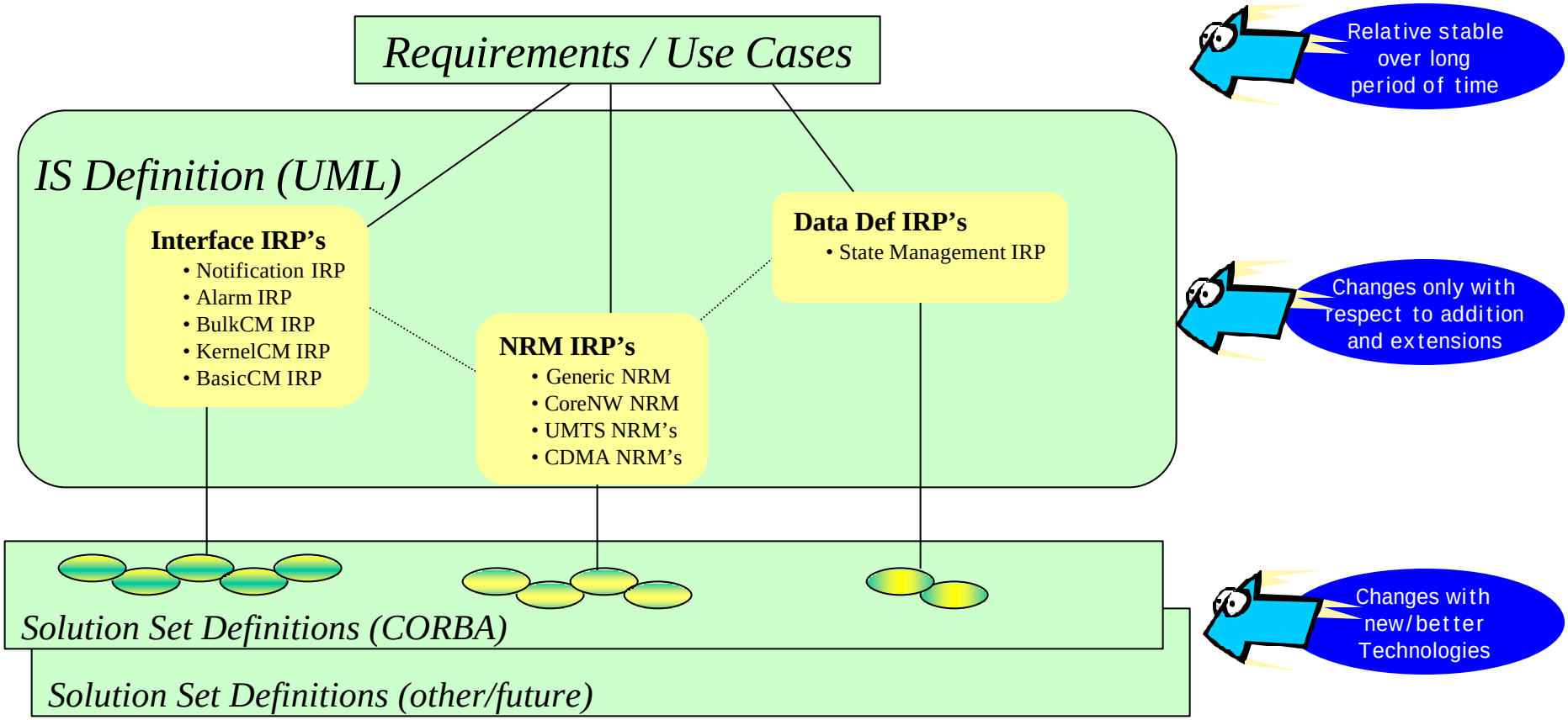
TSG-S WG5

- Operators
  - Enables multi-vendor OSS Components
  - Enables multi-vendor Networks
  - Enable Cost-effective OSS/NW Integration
  - … across NW Technologies
- NW Vendors
  - Common NBI Development across NW Technologies & Operator-customers
  - Allows for Vendor-specific Extensions (enabling competitive advantage capabilities)

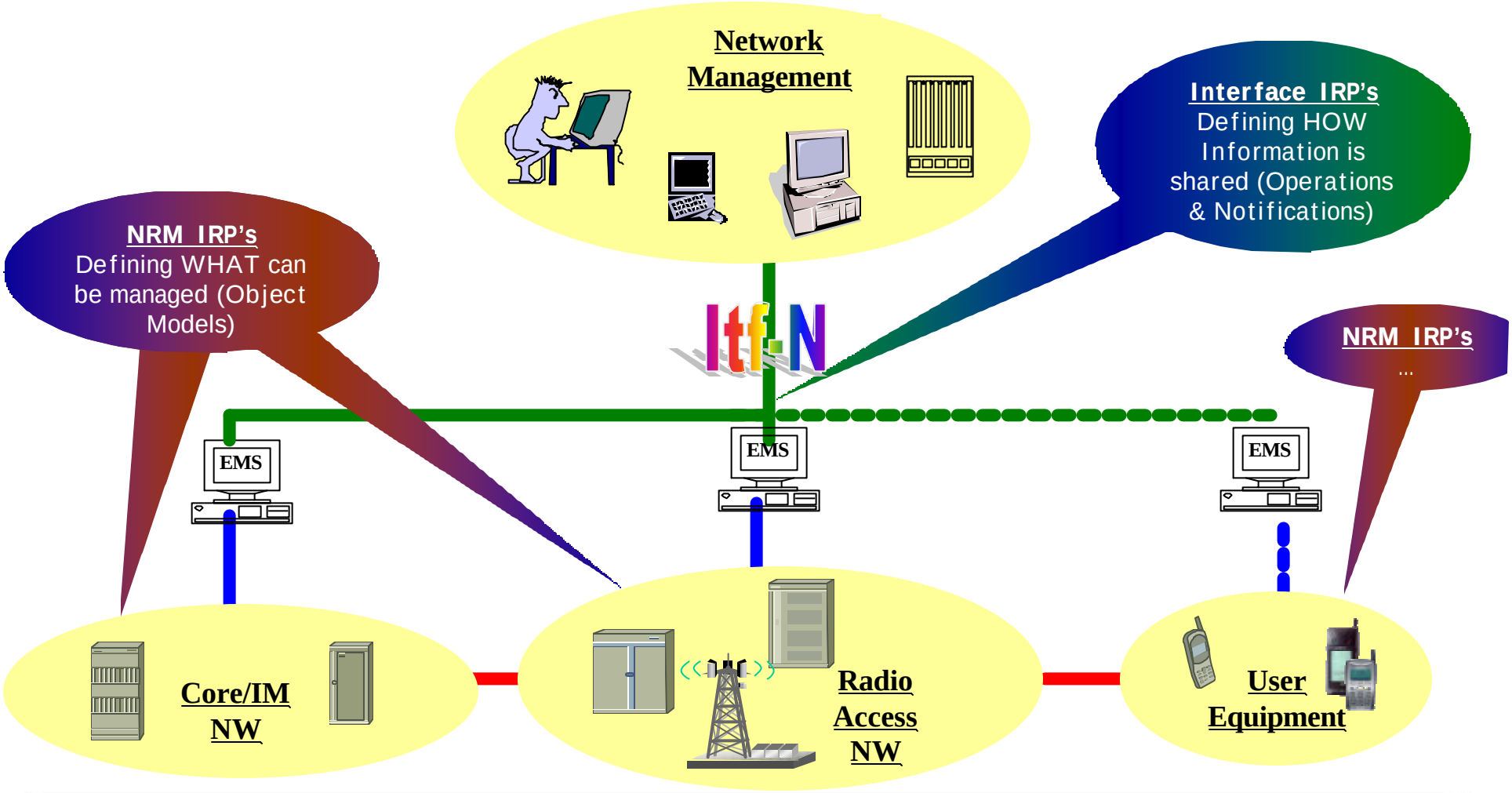
- *One set of NBI Standards for all 2G, 2.5G, 3G and future wireless technologies!*

© 2003 Motorola, Inc.; Ericsson Inc.

IRP Concept – Build to last … and to cope with change



Interface IRP vs. NRM IRP



© 2003 Motorola, Inc.; Ericsson Inc.

IRP Development Principles

- NRM IRP Extendibility
  - vsDataContainer
  - Rule-based NRM Extensions
  - Enabling: Technology & vendor specific NRM extensions (3GPP2 NRM's are technology-specific NRM extensions !!)

- Interface IRP Flexibility
  - Flexible use of qualifiers "mandatory", "optional", "visibility" for operation, notifications and/or parameters
  - NRM/Technology-neutrality
  - Enabling: wide applicability, phased introduction capabilities & broad industry adoption (not just for wireless !!)

© 2003 Motorola, Inc.; Ericsson Inc.

S.S0028-A: Interface IRP's

- **Alarm IRP (32.111-1, 32.111-2, 32.111-3)**
  - **Significant IOC:** alarmInformation
  - **Operations:**
    - acknowledgeAlarms (M)
    - getAlarmList (M)
    - getAlarmCount (O)
    - unacknowledgeAlarms (O)
    - setComment (O)
  - **Notifications:**
    - notifyNewAlarm (M)
    - notifyAckStateChanged (M)
    - notifyClearedAlarm (M)
    - notifyAlarmListRebuilt (M)
    - notifyChangedAlarm (O)
    - notifyComments (O)

- **Notification IRP (32.301, 32.302, 32.303)**
  - **Significant IOC:** notificationHeader
  - **Operations:**
    - subscribe (M)
    - unsubscribe (M)
    - getSubscriptionIds (O)
    - getSubscriptionStatus (O)
    - changeSubscriptionFilter (O)
    - suspendSubscription (O)
    - resumeSubscription (O)
    - getNotificationCategories (O)
  - **Notifications:**
    - None

© 2003 Motorola, Inc.; Ericsson Inc.

S.S0028-A: Interface IRP's (cont.)

- **Generic IRP (32.311, 32.312)**
  - **Significant IOC:** ManagedGenericIRP
  - **Operations:**
    - getIRPVersion (M)
    - getOperationProfile (O)
    - getNotificationProfile (O)
  - **Notifications:**
    - None

- **BasicCM IRP (32.601, 32.602, 32.603)**
  - **Operations:**
    - getMoAttributes (M)
    - getContainment (O)
    - getBasicCmIRPVersion (M)
    - cancelOperation (O)
  - **Notifications:**
    - notifyObjectCreation (O)
    - notifyObjectDeletion (O)
    - notifyAttributeValueChange (O)
  - *Note: the notifications listed above are based on the R4 BasicCM IRP – within R5 of 3GPP these notification have moved into the R5 KernelCM IRP.*

© 2003 Motorola, Inc.; Ericsson Inc.

S.S0028-A: Interface IRP's (cont.)

- **BulkCM IRP (32.611, 32.612, 32.613)**
  - **Operations:**
    - startSession (M)
    - endSession (M)
    - upload (M)
    - download (M)
    - activate (M)
    - fallback (M)
    - abortSessionOperation (M)
    - getSessionIds (M)
    - getSessionStatus (M)
    - getSessionLog (M)
    - getBulkCmIRPVersion (M)
  - **Bulk CM Data File Sub-operations:**
    - bulkCmCreateMo (Create MO Sub-operation) (M)
    - bulkCmDeleteMo (Delete MO Sub-operation) (M)
    - bulkCmChangeMo (Change MO Sub-operation) (M)
  - **Notifications:**
    - notifySessionStateChanged (M)
    - notifyGetSessionLogEnded (M)

© 2003 Motorola, Inc.; Ericsson Inc.

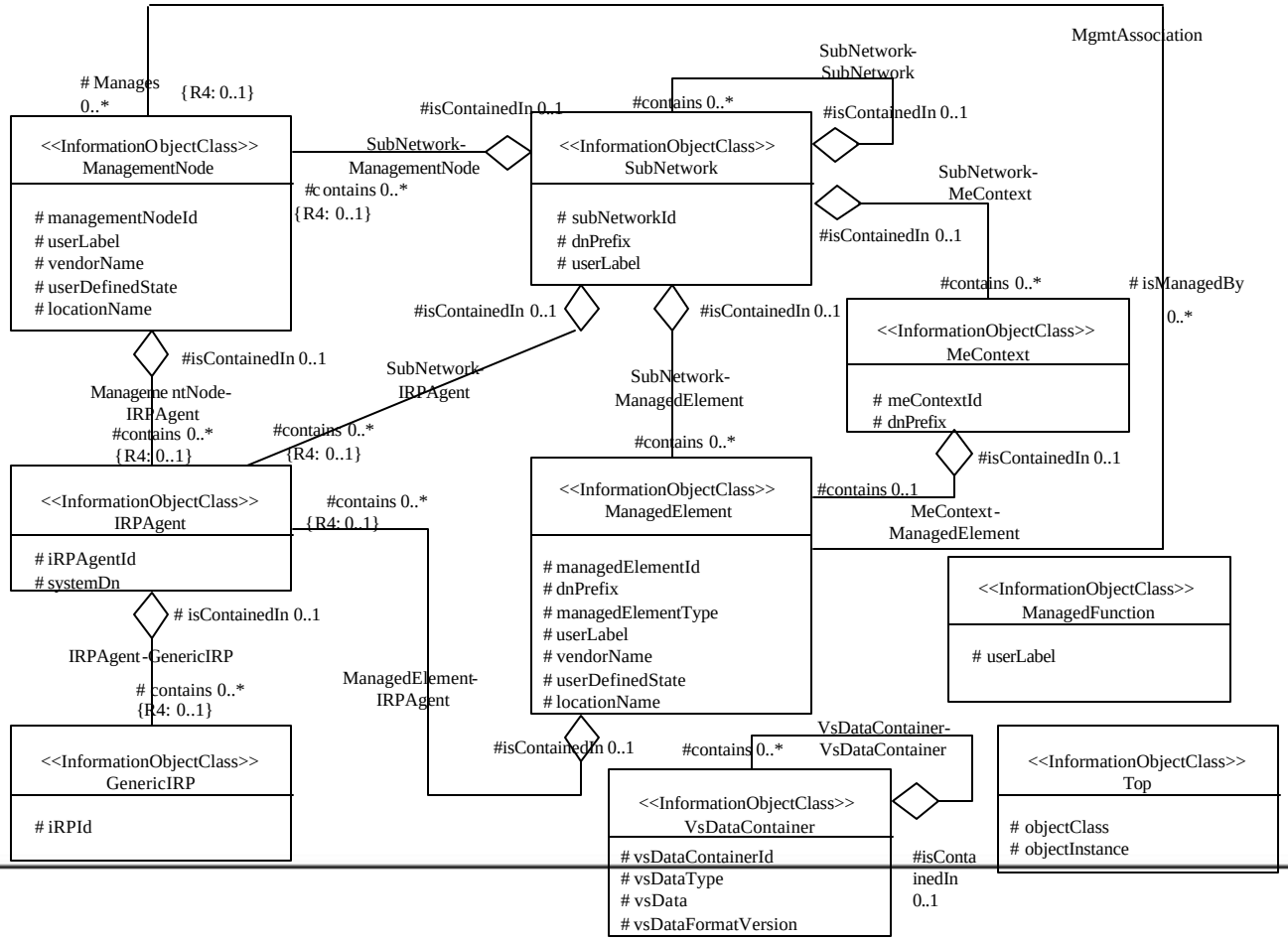
S.S0028-A: NRM IRP's

- **S.S0028-A: applicable NRM IRP's**
  - **3GPP Generic NRM IRP**
    - 32.621 – Requirements
    - 32.622 – IS Definition
    - 32.623 – CORBA SS
  - **3GPP2 Generic NRM IRP**
    - S.S0028-A, Annex A.1 – IS Definition
    - S.S0028-A, Annex A.2 – CORBA SS
  - **3GPP2 Core Network NRM IRP**
    - S.S0028-A, Annex B.1 – IS Definition
    - S.S0028-A, Annex B.2 – CORBA SS
  - **3GPP2 Radio Access Network NRM IRP**
    - S.S0028-A, Annex C.1 – IS Definition
    - S.S0028-A, Annex C.2 – CORBA SS

© 2003 Motorola, Inc.; Ericsson Inc.

S.S0028-A: NRM IRP's (cont.)

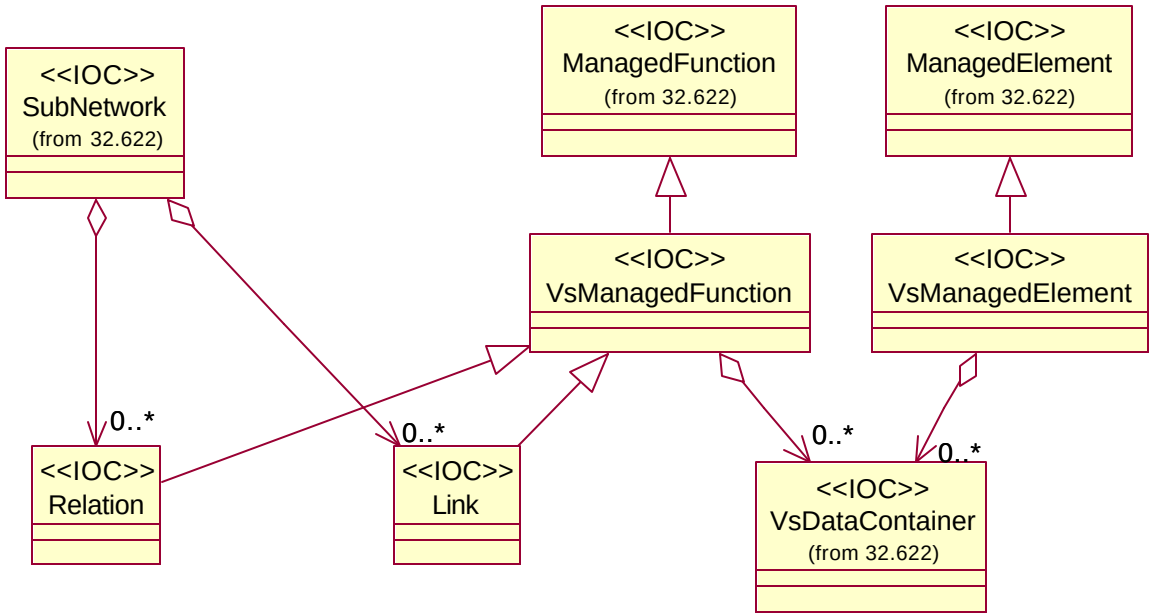
- **3GPP Generic NRM IRP (32.621, 32.622, 32.623)**



© 2003 Motorola, Inc.; Ericsson Inc.

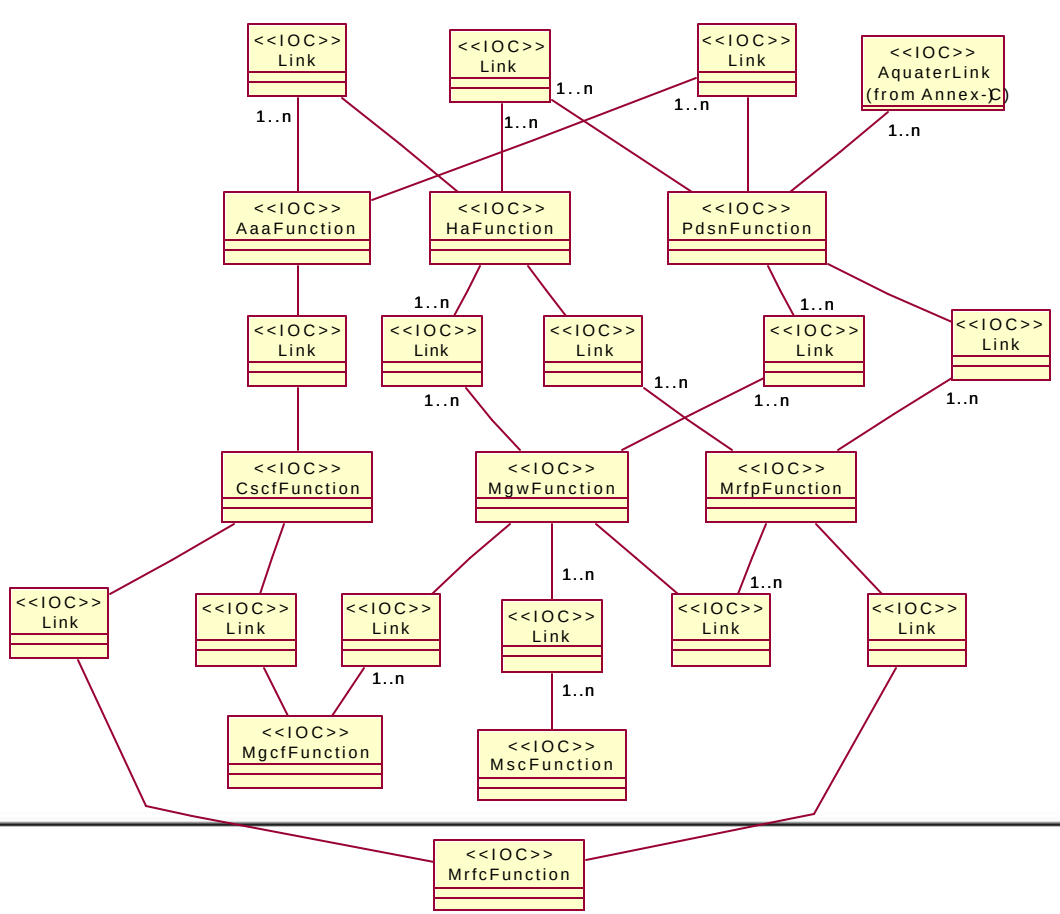
S.S0028-A: NRM IRP's (cont.)

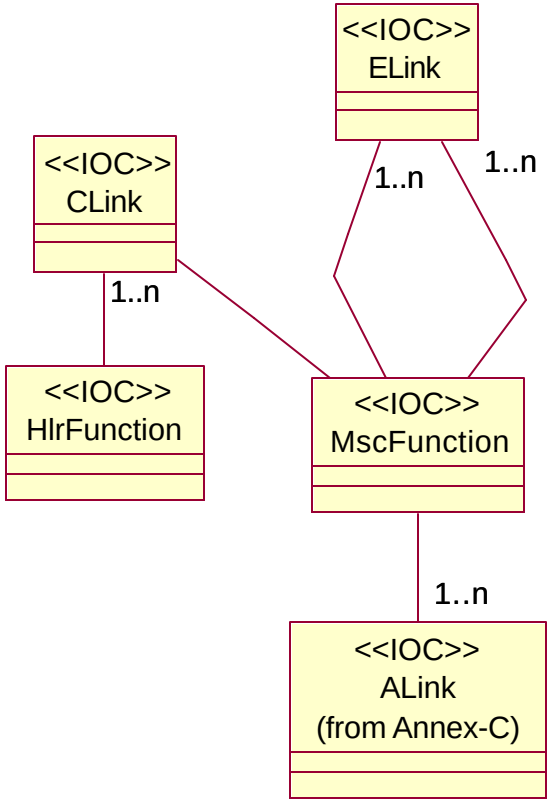
- **3GPP2 Generic NRM IRP (S.S0028-A, Annex A)**



S.S0028-A: NRM IRP's (cont.)

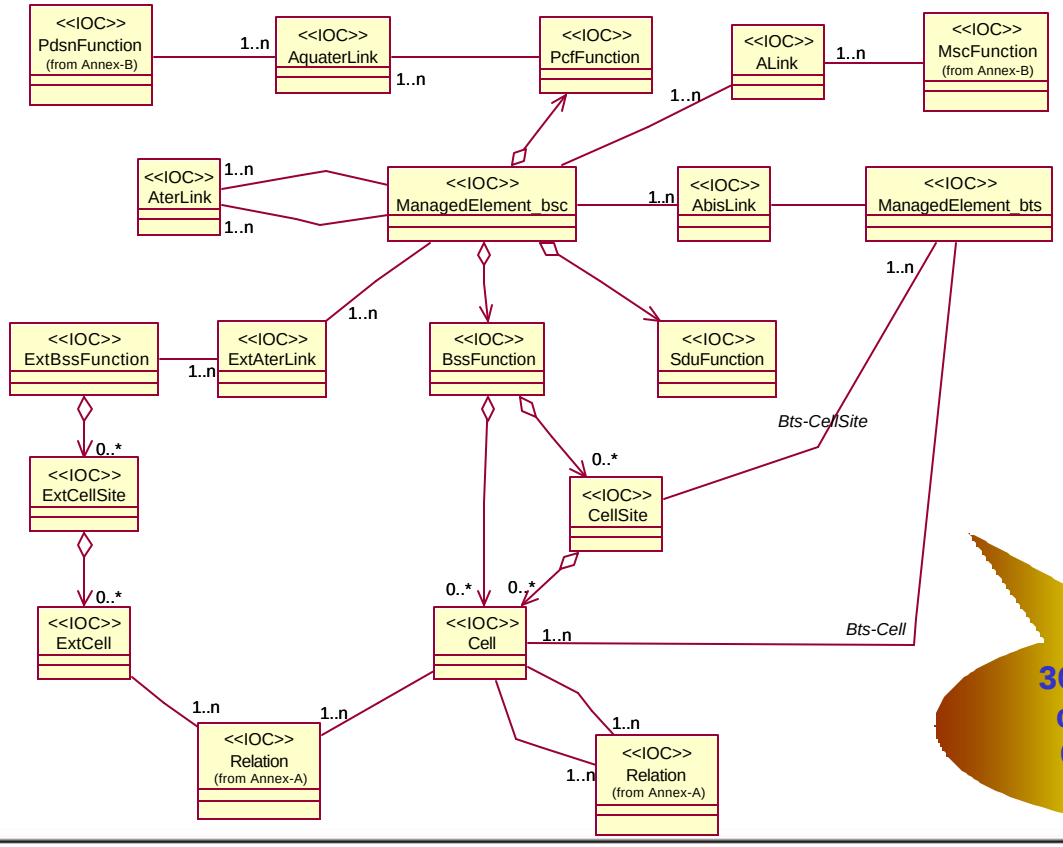
- **3GPP2 Core Network NRM IRP (S.S0028-A, Annex B)**





S.S0028-A: NRM IRP's (cont.)

- **3GPP2 Radio Access Network NRM IRP (S.S0028-A, Annex C)**



3GPP2 RAN NRM IRP currently covers all CDMA technologies (IS95, 1X, …)

© 2003 Motorola, Inc.; Ericsson Inc.

3GPP2 S.S0028: What's next

3RD GENERATIC
PARTNERSHIP
PROJECT 2
"3GPP2"

S.S0028-A
(Published Q4 2002)

- PM File Transfer (32.401)
- Alarm IRP (32.111-x)
- Notification IRP (32.30x)
- Generic IRP (32.31x)
- BasicCM IRP (32.60x)
- BulkCM IRP (32.61x)
- *GenericNRM IRP* (32.62x)
- *3GPP2 GenericNRM IRP* (S.S0028-A, Annex A)
- *3GPP2 Core NRM IRP* (S.S0028-A, Annex B)
- *3GPP2 RAN NRM IRP* (S.S0028-A, Annex C)

S.S0028-B
(R5-based - Q3 2003)

- S.S0028-A & Extensions
- TestM IRP (32.32x)
- Kernel IRP (32.66x)
- StateM IRP (32.66x)
- *InventoryM NRM IRP* (32.69x)

S.S0028-C
(R6-based - Q2 2004)

- S.S0028-B & Extensions
- PM IRP (32.41x)
- FT IRP (32.34x)
- CS IRP (32.xxx)
- EP IRP (32.xxx)
- Log IRP (32.33x)

3GPP2 NRM IRP Extensions are 3GPP2 contribution driven

MOTOROLA

© 2003 Motorola, Inc.; Ericsson Inc.

ERICSSON

3GPP2 & S.S0028
How to get involved

- New Interface IRP, changes to an Interface IRP or changes to the Generic NRM IRP:
  - *Either (if 3GPP member)*: attend 3GPP SA5 and provide relevant contributions
  - *Or (if 3GPP2 member)*: attend 3GPP2 TSG-S WG5, provide relevant contributions, and TSG-S will liaise this request to SA5
- New 3GPP2 NRM IRP or changes/extensions to an existing 3GPP2 NRM IRP:
  - attend 3GPP2 TSG-S WG5 and provide relevant contributions

- *Ericsson and Motorola, involved and active in both, 3GPP SA5 and 3GPP2 TSG-S, will continue to provide support to 3GPP2 members to ensure that their interests in Interface IRP aspect are considered by 3GPP SA5.*

© 2003 Motorola, Inc.; Ericsson Inc.

3GPP2 & S.S0028
How to get involved (cont.)

- Upcoming 3GPP2 meetings in 2003:
  - April 14-18: Coeur d'Alene, ID, USA
  - May 12-16: San Diego, CA, USA
  - July 14-18: San Francisco, CA, USA
  - August 18-22: Seoul, Korea
  - September 15-19: Calgary, AB, Canada
  - October 13-17: Kobe, Japan
  - Meeting calendar: http://www.3gpp2.org/Public_html/Calendar/index.cfm

- 3GPP2 Membership Info
  - 3GPP2 Organizational Partners:
    - ARIB, CWTS, TIA, TTA, TTC
  - Current member companies: http://www.3gpp2.org/Public_html/Misc/MembersHome.cfm

© 2003 Motorola, Inc.; Ericsson Inc.

3GPP2 S.S0028-A
Lessons learned

- Suggested IS improvements
  - Template using “Defined In”
  - Template noting if qualifiers are “inherited”

ttribute name	Defined in	Visibility	Support Qualifier	Read Qualifier	Write Qualifier
xtBssFunctionId	--	+	M	M	--
bjectClass	Top	+ inherited	M inherited	M inherited	-- inherited
bjectInstance	Top	+ inherited	M inherited	M inherited	-- inherited
xtBssFunction-extAterLink-list	--	+	O	M	--

© 2003 Motorola, Inc.; Ericsson Inc.

3GPP2 S.S0028-A

Lessons learned (cont.)

- Suggested SS improvements
  - In mapping table not defining SS type if “inherited”
  - In mapping table not defining qualifier if “inherited”
  - In IDL use “inheritance” – Example:
    - interface BssFunction : PP2GenericNRM::VsManagedFunction

M Attributes of IOC sFunction	SS Attributes	SS Type	Qualifier	Read	Write
FunctionId	bssFunctionId	string	M	M	--
ectClass	objectClass	Defined in Top	inherited	inherited	inherited
ectInstance	objectInstance	Defined in Top	inherited	inherited	inherited
Label	userLabel	Defined in ManagedFunction	inherited	inherited	inherited

© 2003 Motorola, Inc.; Ericsson Inc.

3GPP2 S.S0028-A

Lessons learned (cont.)

- XML Reconciliation
  - Annex D of 3GPP2 S.S0028-A contains the 3GPP2 XML definitions – as 32.615 could not be reused directly
  - It is expected that future revisions of S.S0028 will
    - Incorporate by reference 32.615 & 32.625
    - Add XML SS definitions of 3GPP2 NRM's within the relevant Annex (x).3

© 2003 Motorola, Inc.; Ericsson Inc.

© 2003 Motorola, Inc.; Ericsson Inc.

3GPP Structure

3RD GENERATIC
PARTNERSHIP
PROJECT 2
"3GPP2"

Project Co-ordination Group

Technical Specification Groups (TSG's)

TSG-RAN
Radio Access Network

TSG-GERAN
GSM-EDGE Radio Access Network

TSG-CN
Core Network

TSG-SA
Service and System Aspects

TSG-T
Terminals

SA1 - Services
SA2 - Architecture
SA3 - Security
SA4 - Codec
SA5 - Telecom Management

MOTOROLA

© 2003 Motorola, Inc.; Ericsson Inc.

ERICSSON

3GPP2 Structure

3RD GENERATIC
PARTNERSHIP
PROJECT 2
"3GPP2"

3GPP2 Steering Committee

Technical Specification Groups (TSG's)

TSG-A

A-Interface System

TSG-C

cdma2000 Air Interface

TSG-X
(TSG-N / TSG-P)

ANSI-41 / WIN Wireless Packet Data Interworking

TSG-S

Service and System Aspects

3RD GENERATION
PARTNERSHIP
PROJECT 2
"3GPP2"

WG1 – Features & Services Requirements

WG2 – Architecture

WG3 – Program Management

WG4 – Security

WG5 – OAM&P

MOTOROLA

© 2003 Motorola, Inc.; Ericsson Inc.

ERICSSON