



# BalticGrid Project



## Service Level Agreement in BalticGrid project

*Baiba Kaškina, Katrina Sataki  
IMCS, University of Latvia*

*Amsterdam, 6 December 2006*

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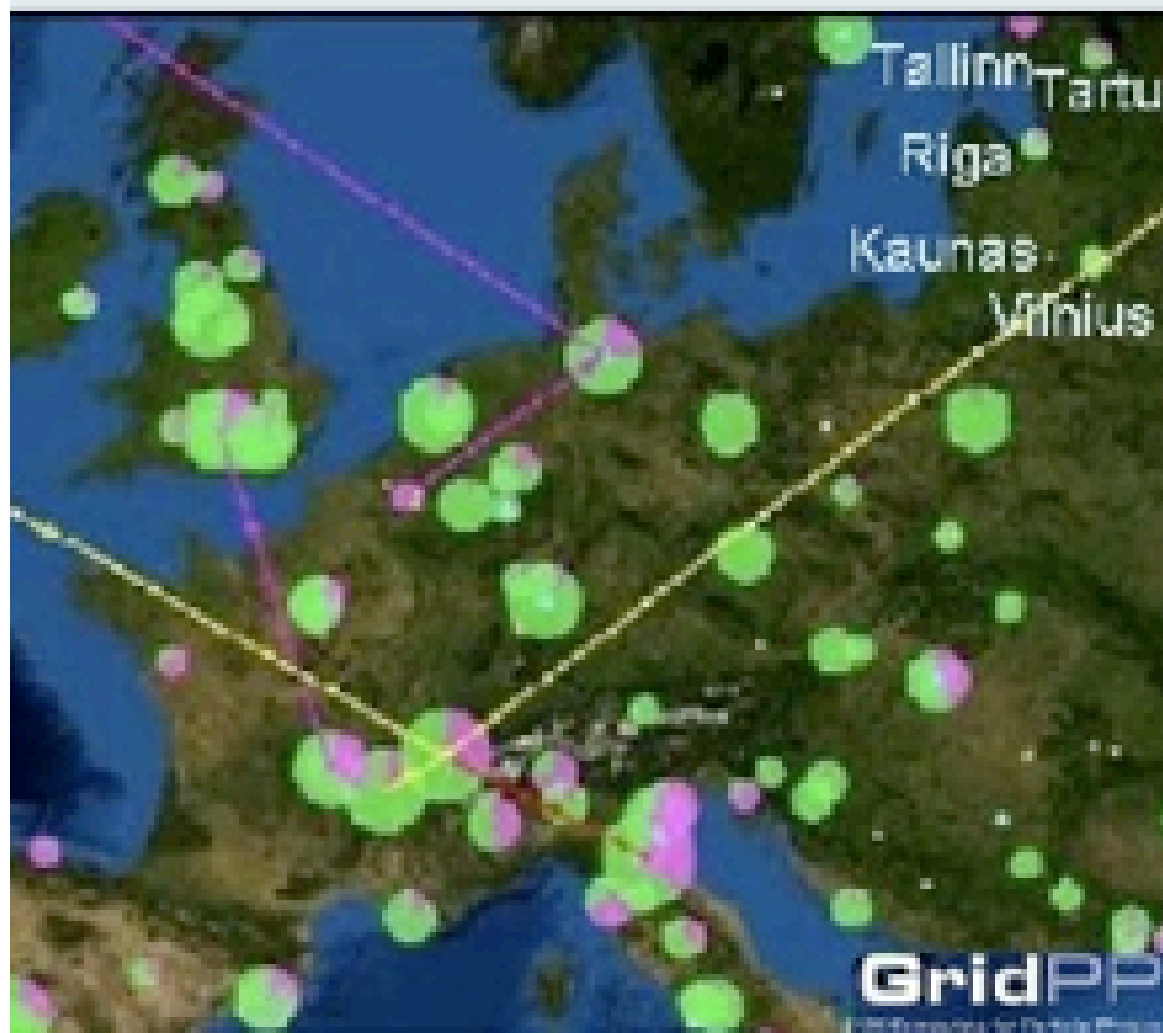
- BalticGrid: brief introduction
- Situation analysis
- SLA management process
- Structure of SLA



- The goal of the BalticGrid project is
  - to extend the European Grid by integrating new partners from the Baltic States (Lithuania, Latvia and Estonia) in the European Grid research community and
  - to foster the development of Grid infrastructure in these countries.



# Situation Overview



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# Application analysis

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	size (MB)		usage (times/month)		Bandwidth requested (Mbps)	Required bandwidth (calculated MB per month)	
	input	output	min	max		min	max
SimHEP	5	1000	1	4	10	1005	4020
SYMPLECTIC1	5	5	20	50	1	200	500
LOAD	0.01	0.1	10	30		1.1	3.3
MCIsing	0.001	0.1	20	50	5	2.02	5.05
NSBGT	0.001	1	10	20	5	10.01	20.02
mpiBLAST	100	10	20	60		2200	6600
SemTi-Kamols	0.01	0.1	1000	100000		110	11000
SYNTSPEC	100	500	10	10		6000	6000
SMEFLUX	100	500	10	10		6000	6000
StatHEP	0.01	1	1500	10000		1515	10100
DOUG	300	30	20	50		6600	16500
abinit	0	0	5	10		0	0
CCP4	100	100	20	500		4000	100000
CNS	100	100	20	500		4000	100000
DEMPAR	30	5	30	30	20	1050	1050
G03	0.01	1	20	20		20.2	20.2
Opt	0.01	1	20	20		20.2	20.2
SHYFEM	500	1000	20	50	5	30000	75000
SWAN	1	2	20	50		60	150
					Month	62793.53	336988.77
					Day	2093.12	11232.96
					Hour	87.21	468.04
					<b>Mbps</b>	<b>0.19</b>	<b>1.04</b>

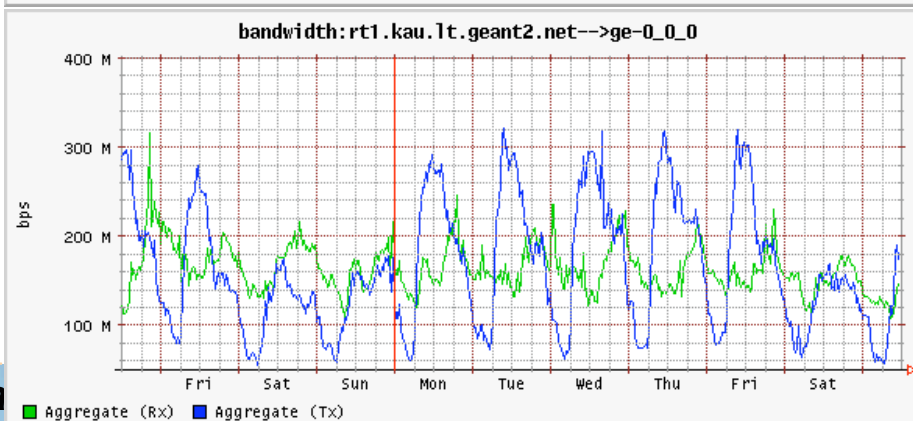
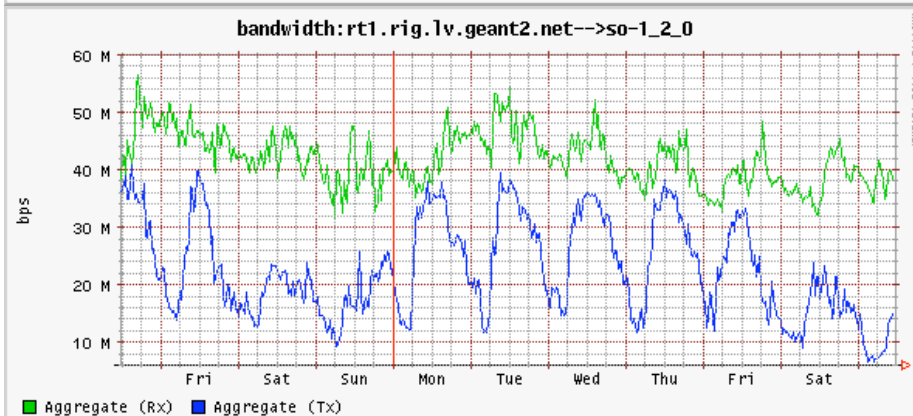
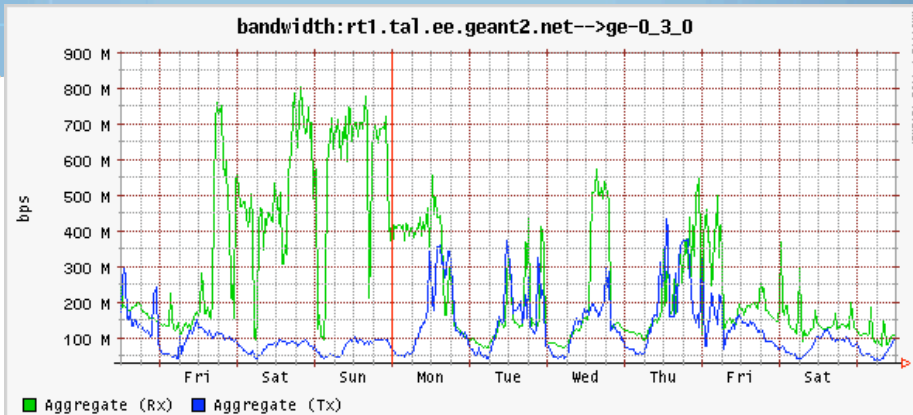


# Spring 2006: GEANT link utilization

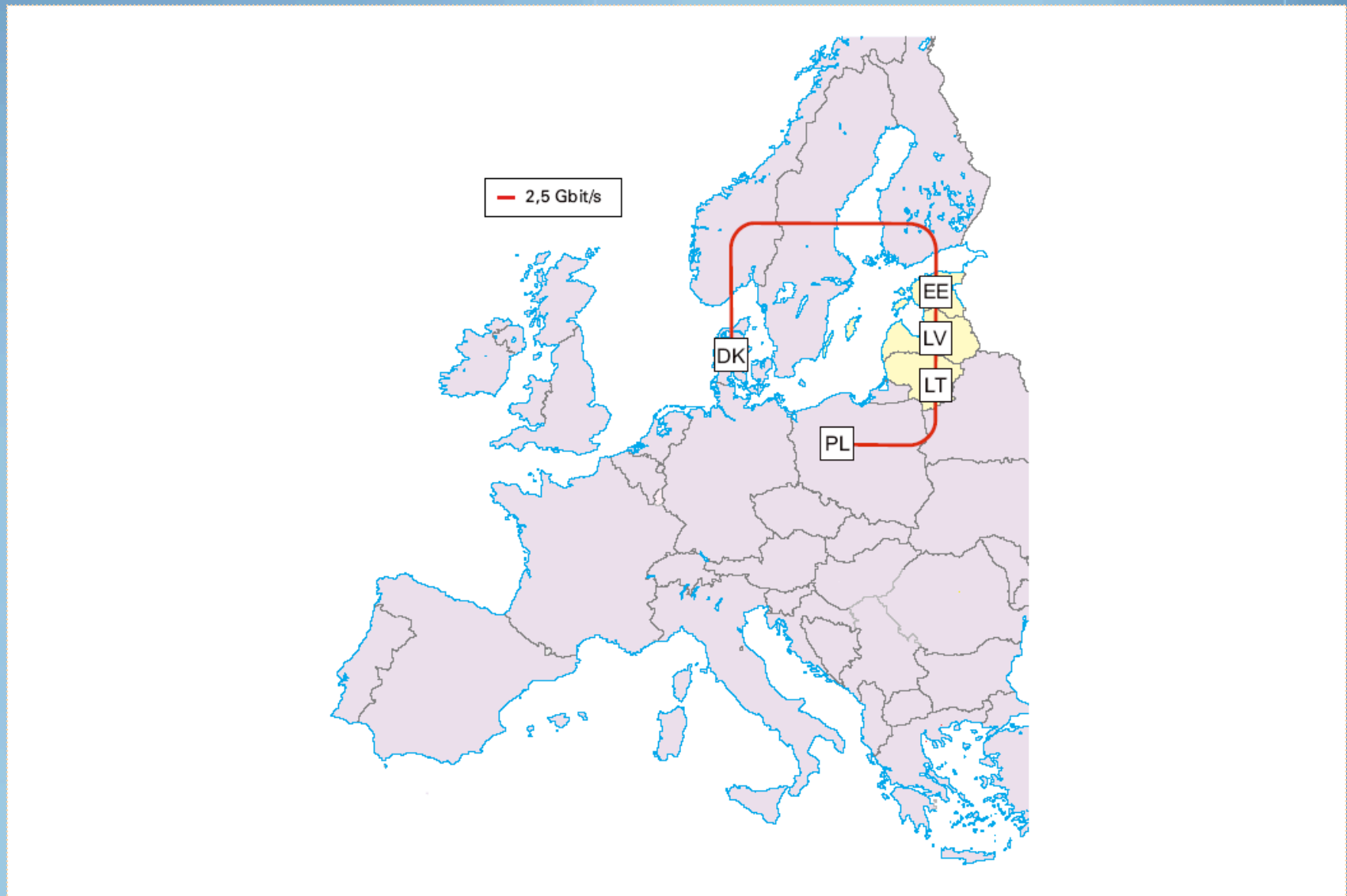
■ EENET 622Mbps

■ LATNET 155Mbps

■ LITNET 622Mbps



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*Amsterdam, 6 December 2006*



# GEANT2: December 2006

EENet - 1Gbps

LATNET - 155Mbps

LITNET - 1Gbps



# SLA management process

**SLA need is identified**  
Negotiation phase  
NA3, SA1, SA2, NREN

# SLA management process

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Negotiation phase

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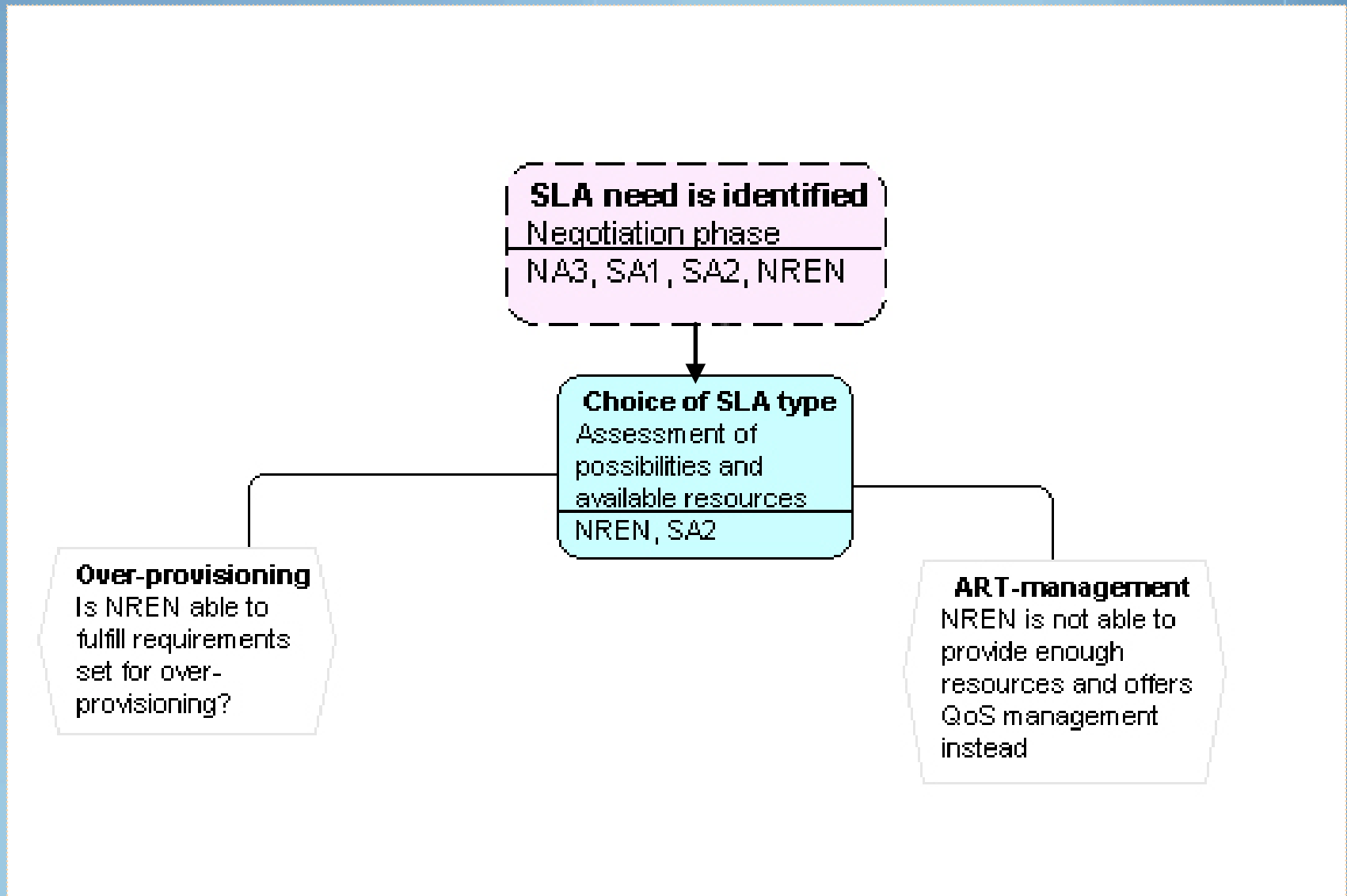


**Choice of SLA type**

Assessment of  
possibilities and  
available resources

NREN, SA2

# SLA management process





# Over-provisioning

Service provider guarantees available bandwidth capacity that exceeds the actual user needs. SLA specifies:

- ◆ Packet loss
- ◆ One-way delay between the BalticGrid resource centres
- ◆ MTU all along the traffic path.
- ◆ Minimal jitter
- ◆ Traffic load does not exceed 75% of available bandwidth for more than 10% a month.



# ART - Quality Of Service (QoS)

Three QoS levels were specified:

- ◆ Amber: Corresponds to GÈANT Premium IP.
- ◆ Rock: Corresponds to GÈANT BE traffic class.
- ◆ Timber: Corresponds to LBE traffic in GÈANT.



# SLA management process

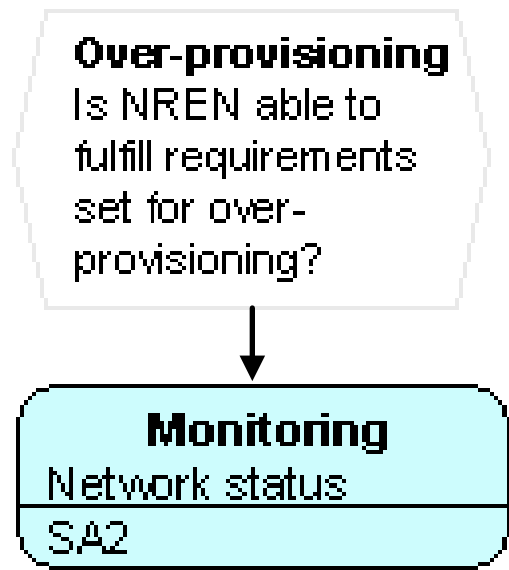
## **Over-provisioning**

Is NREN able to fulfill requirements set for over-provisioning?

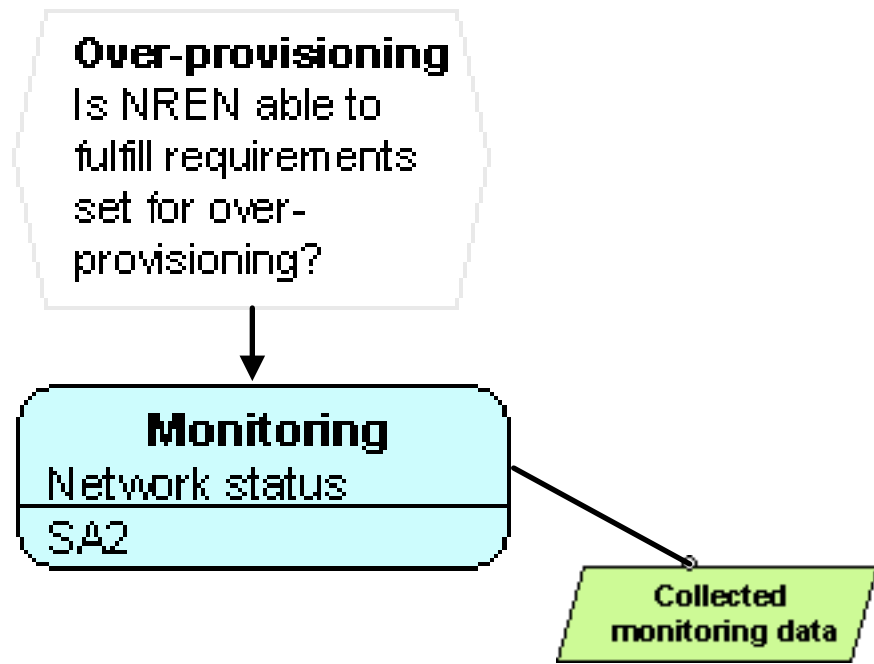


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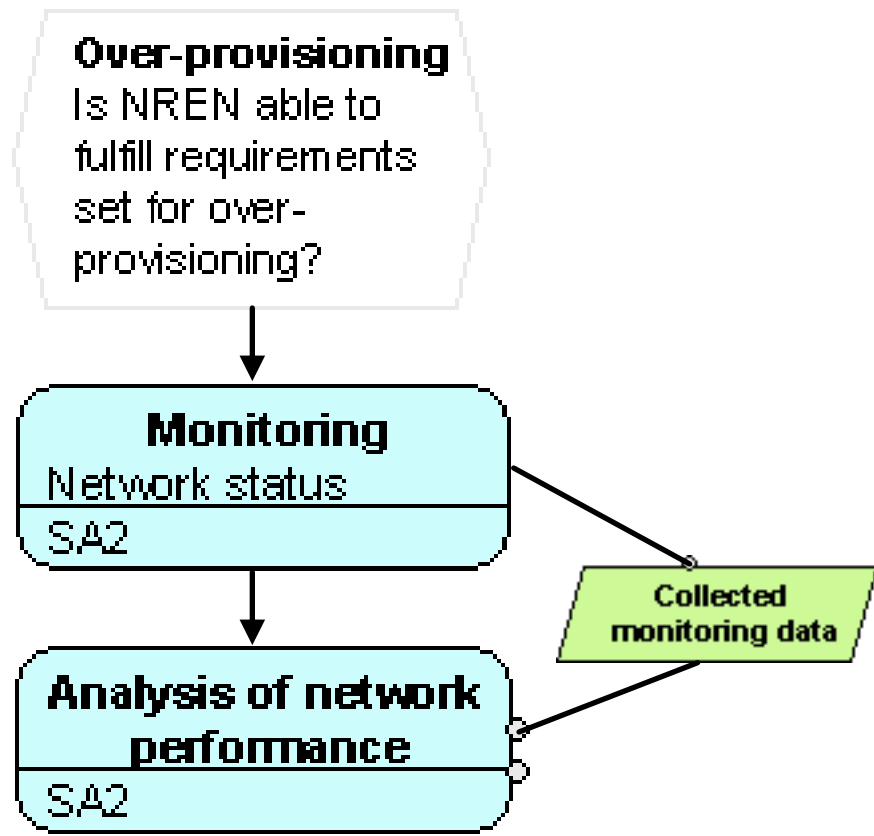
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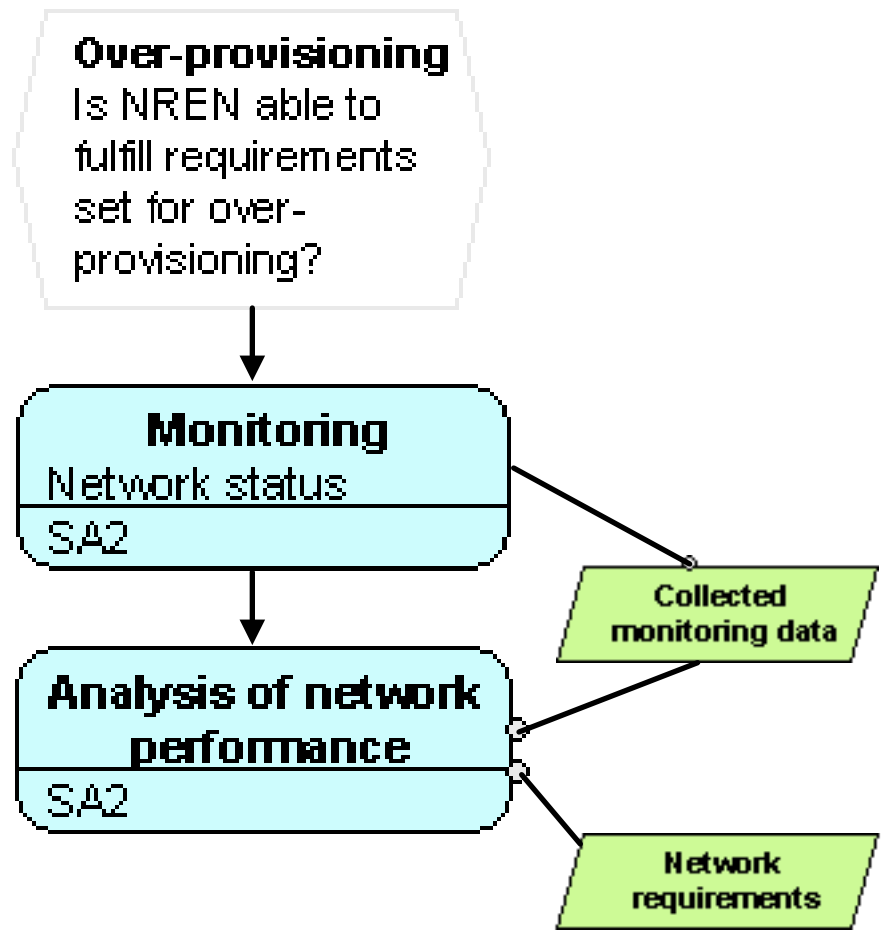
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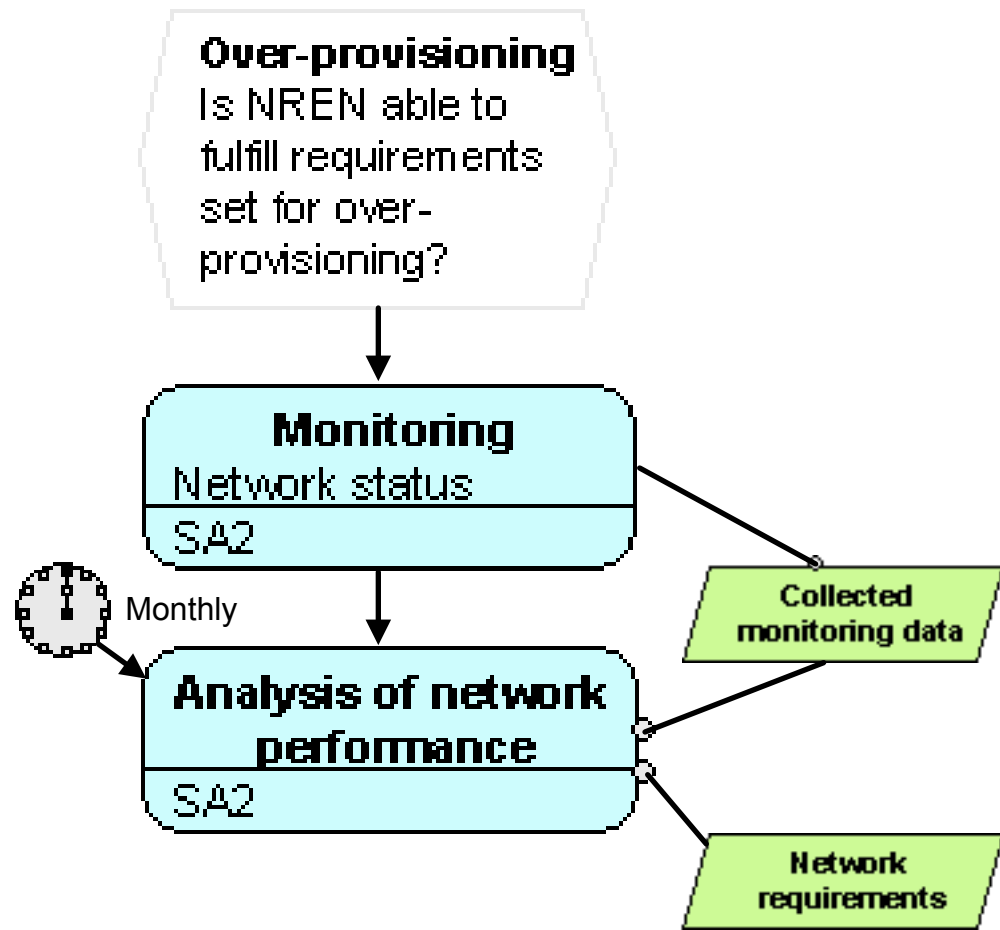
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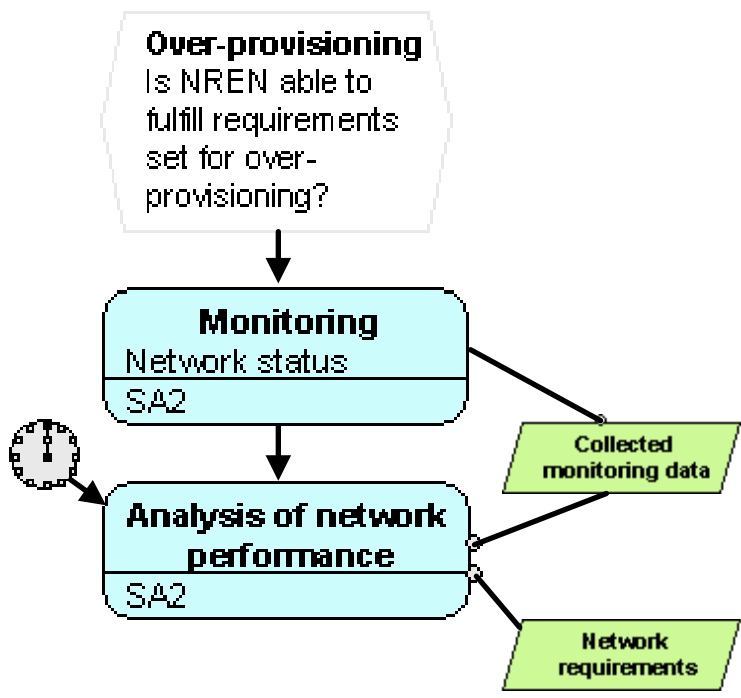
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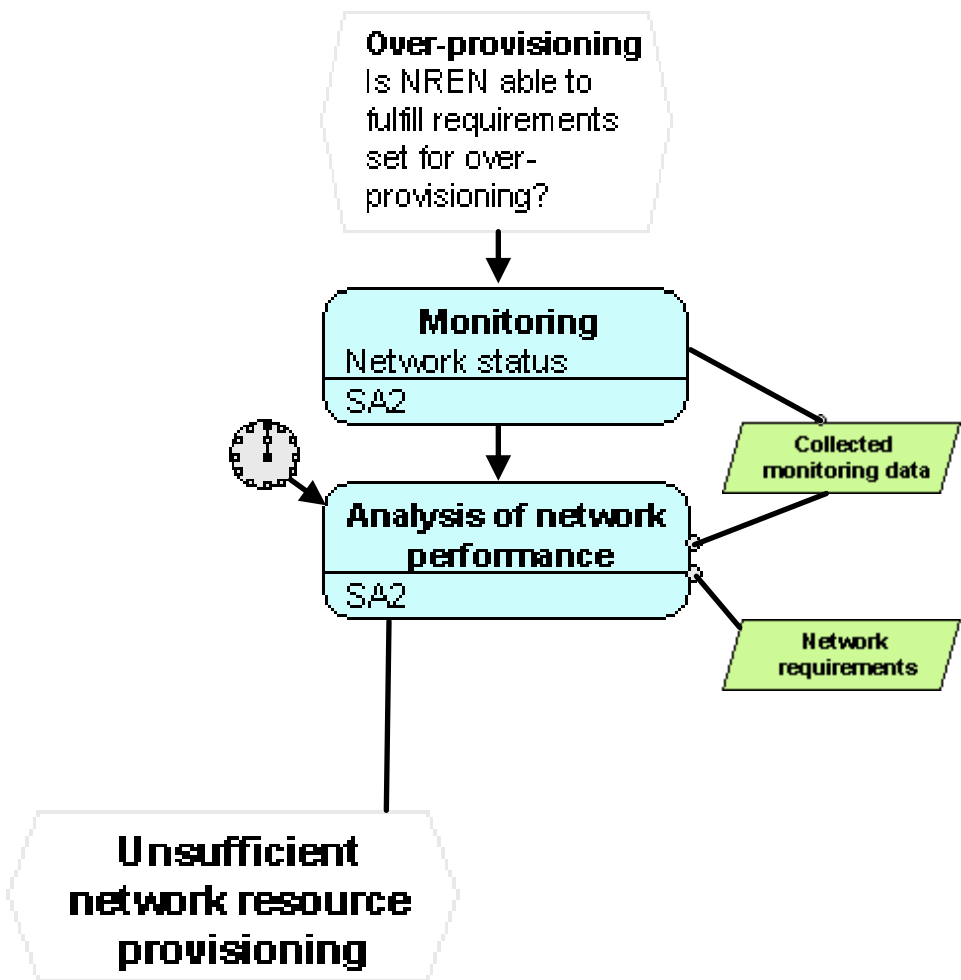
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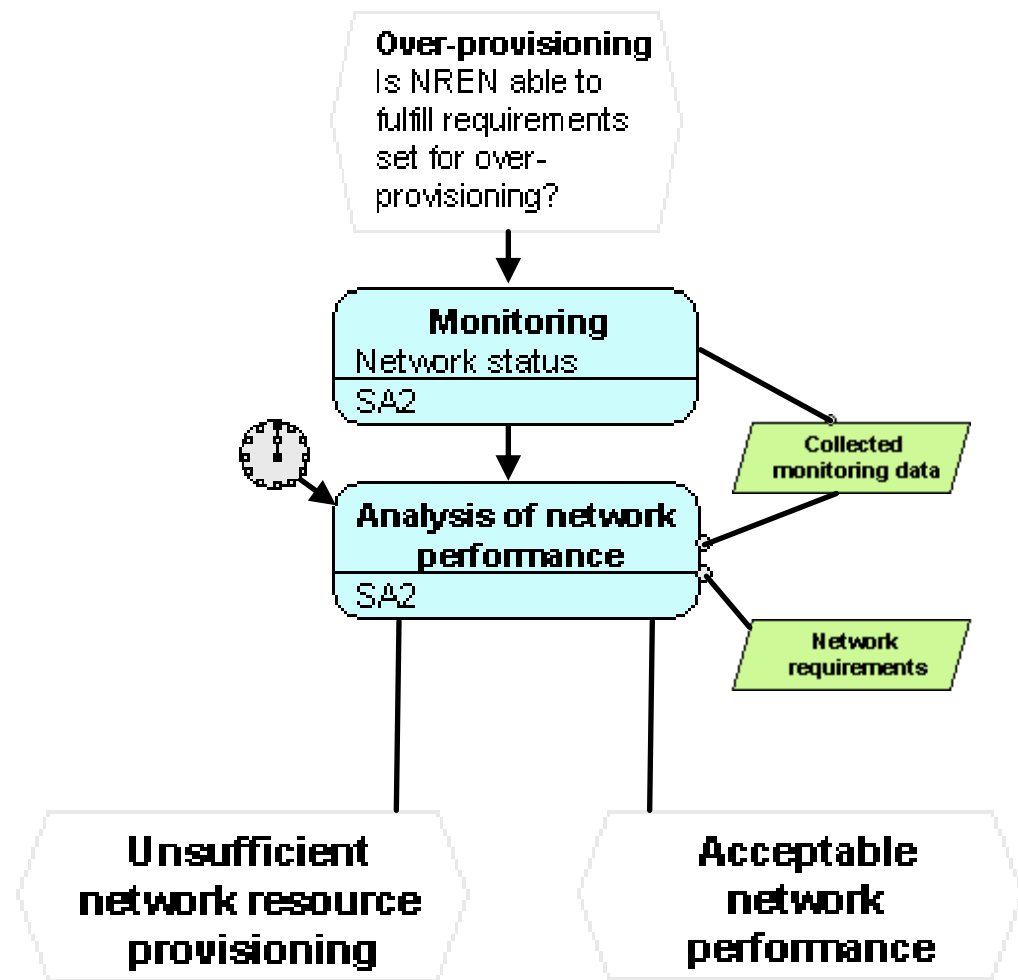
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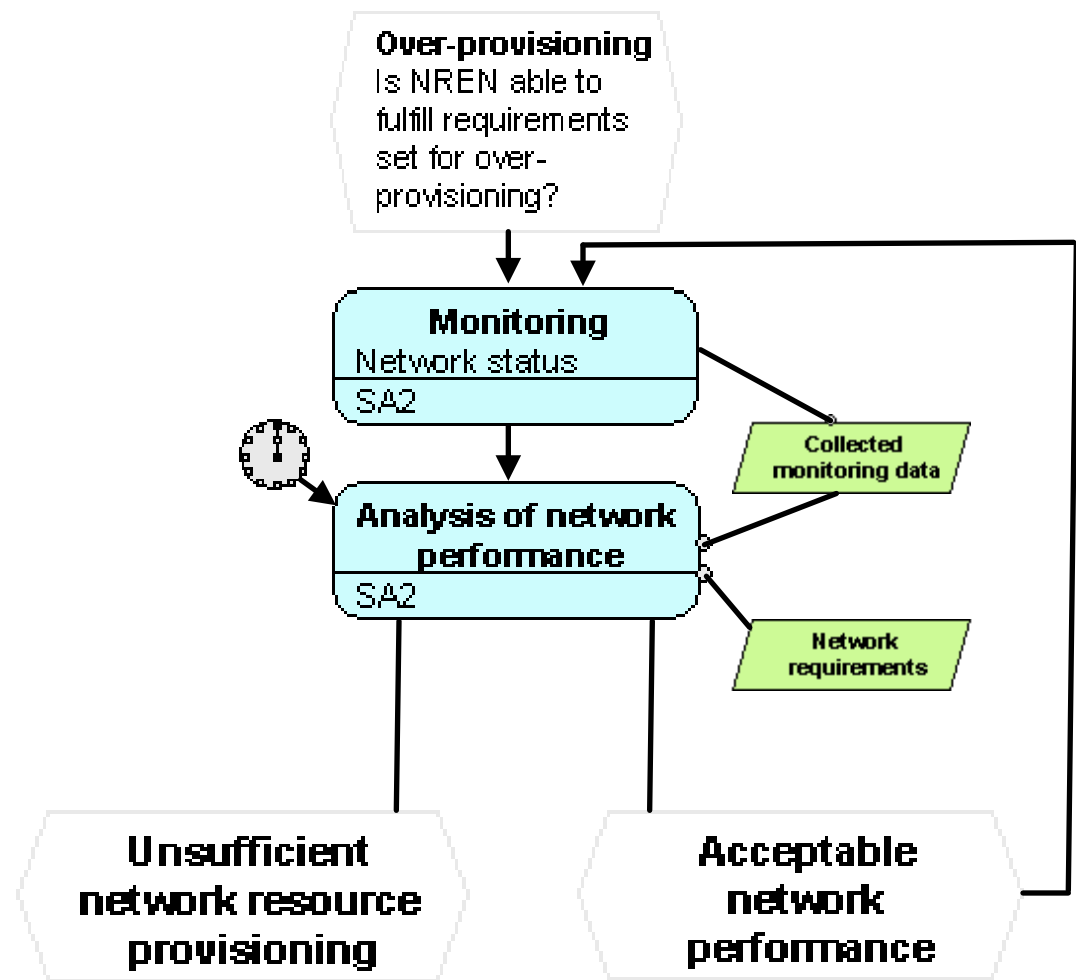
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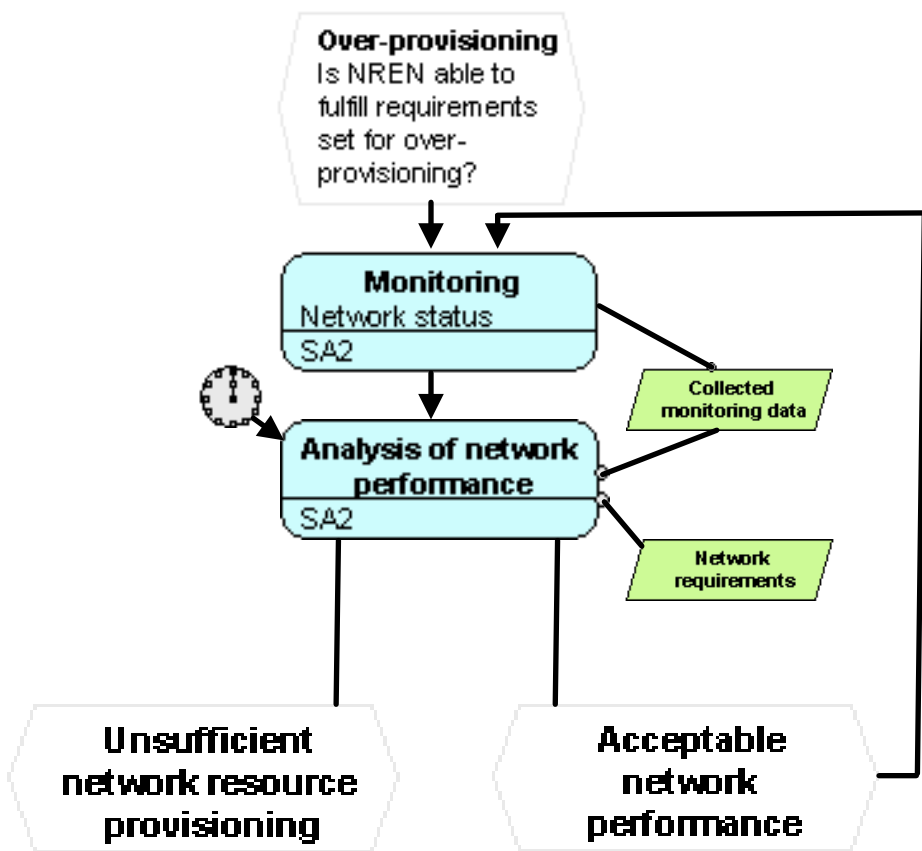
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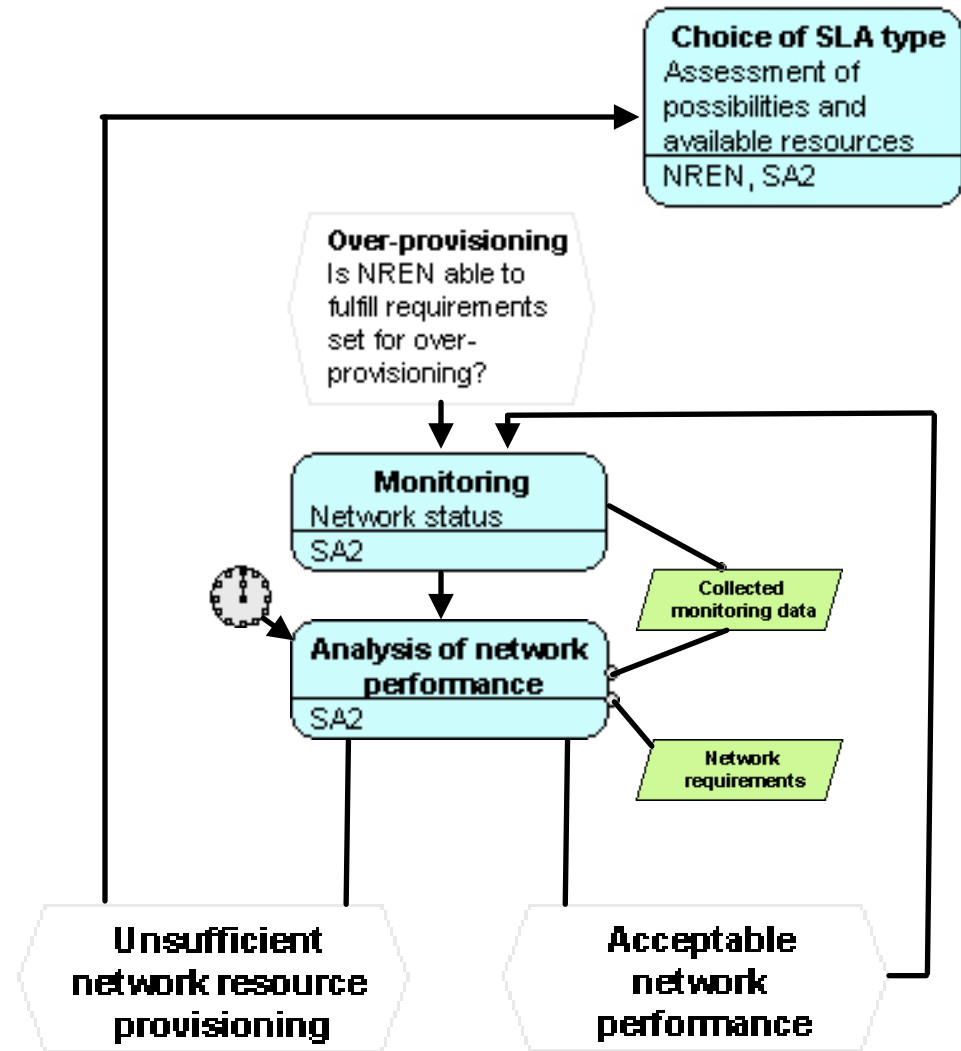
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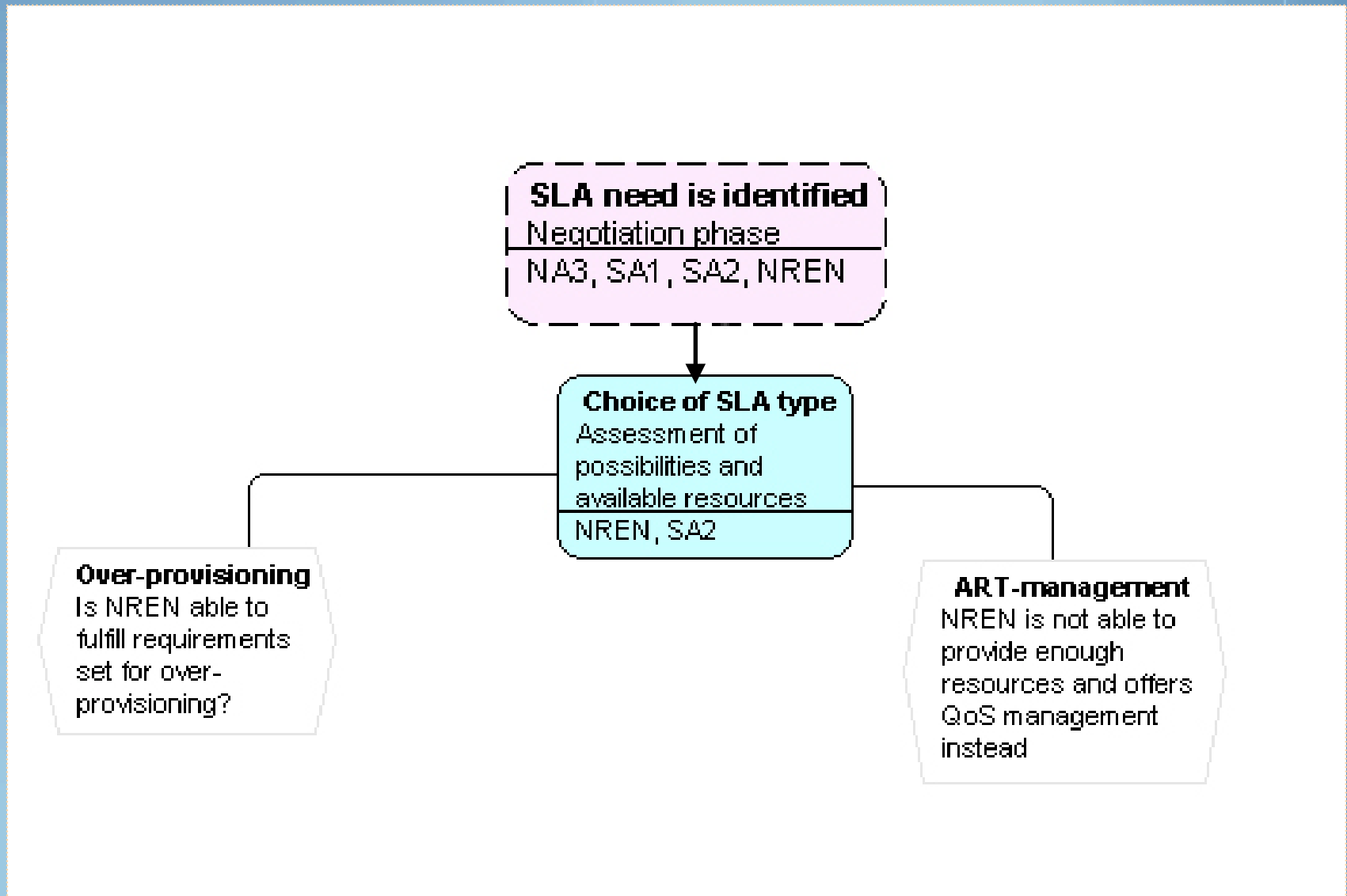
# SLA management process



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# SLA Management process

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# SLA Management process

## **ART-management**

NREN is not able to provide enough resources and offers QoS management instead

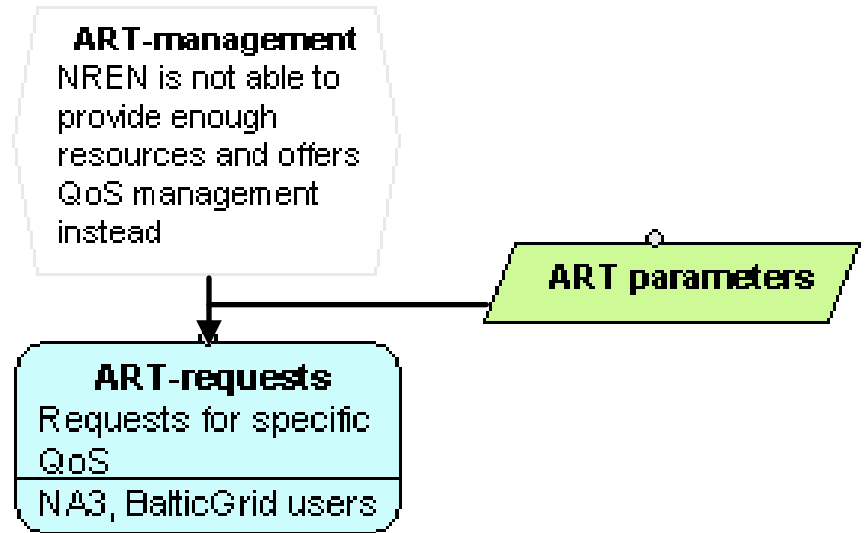


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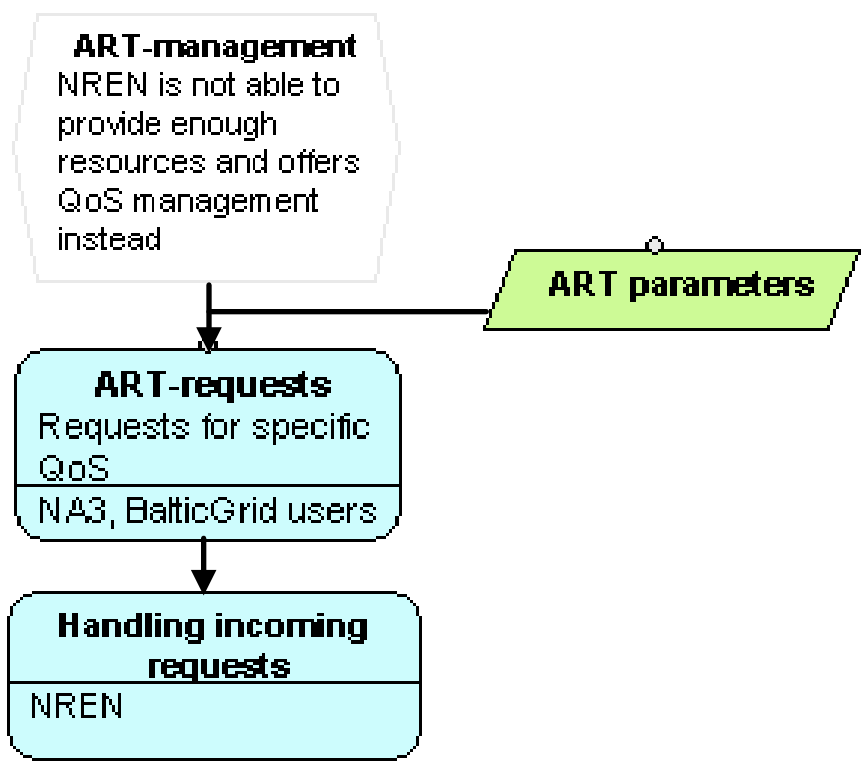
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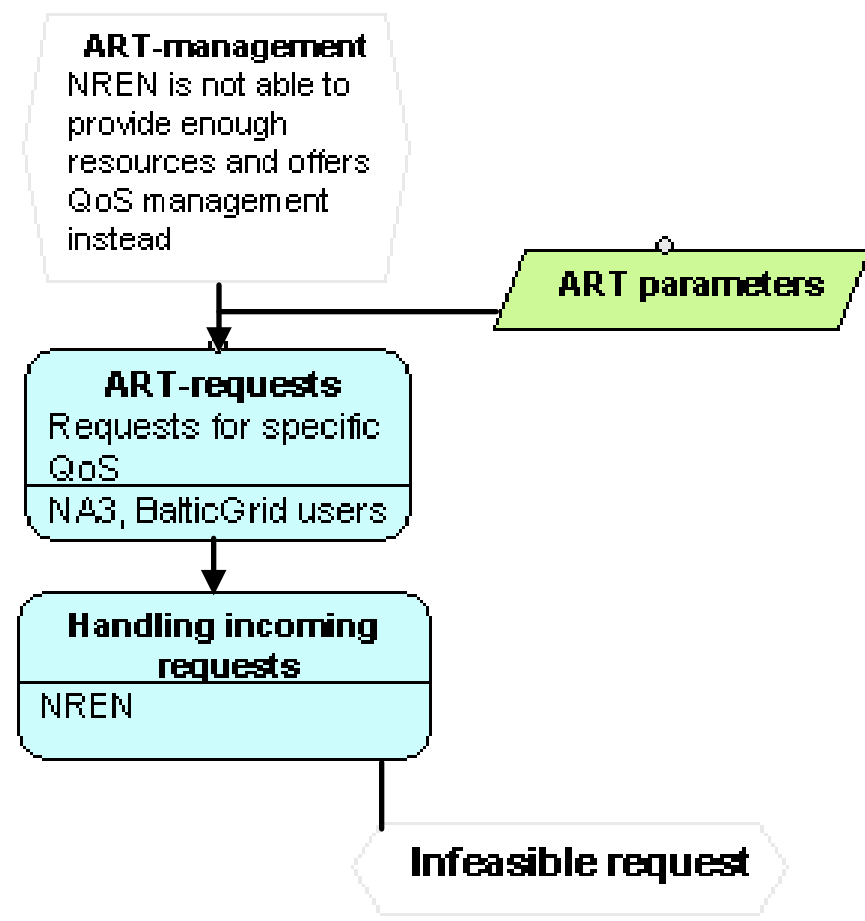
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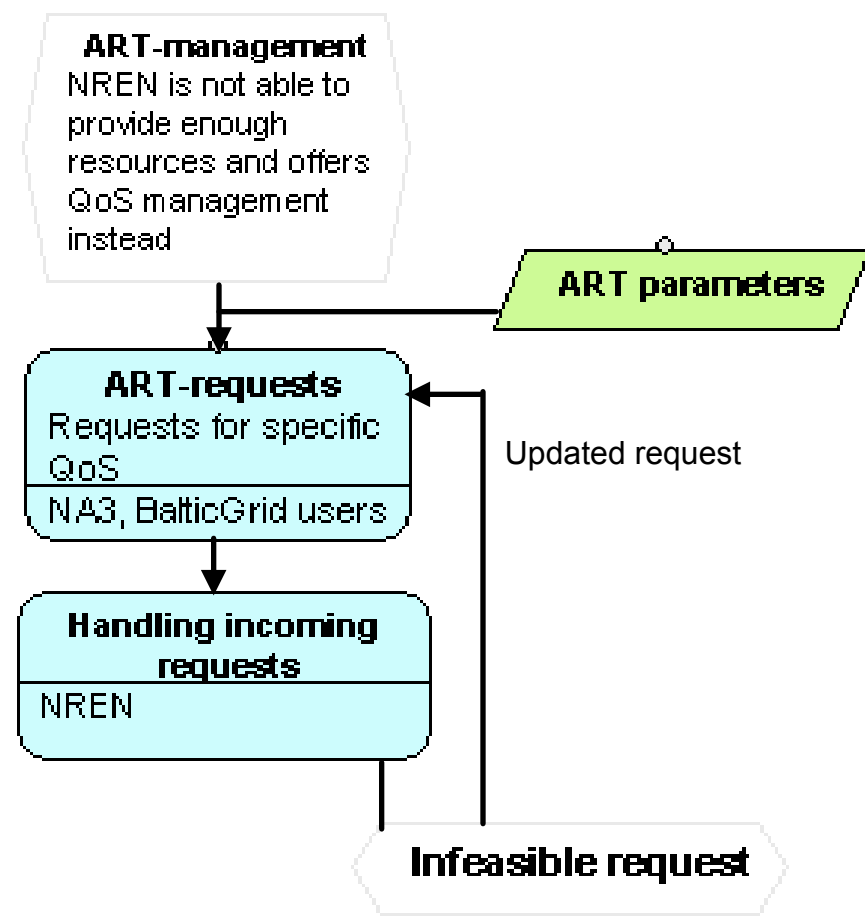
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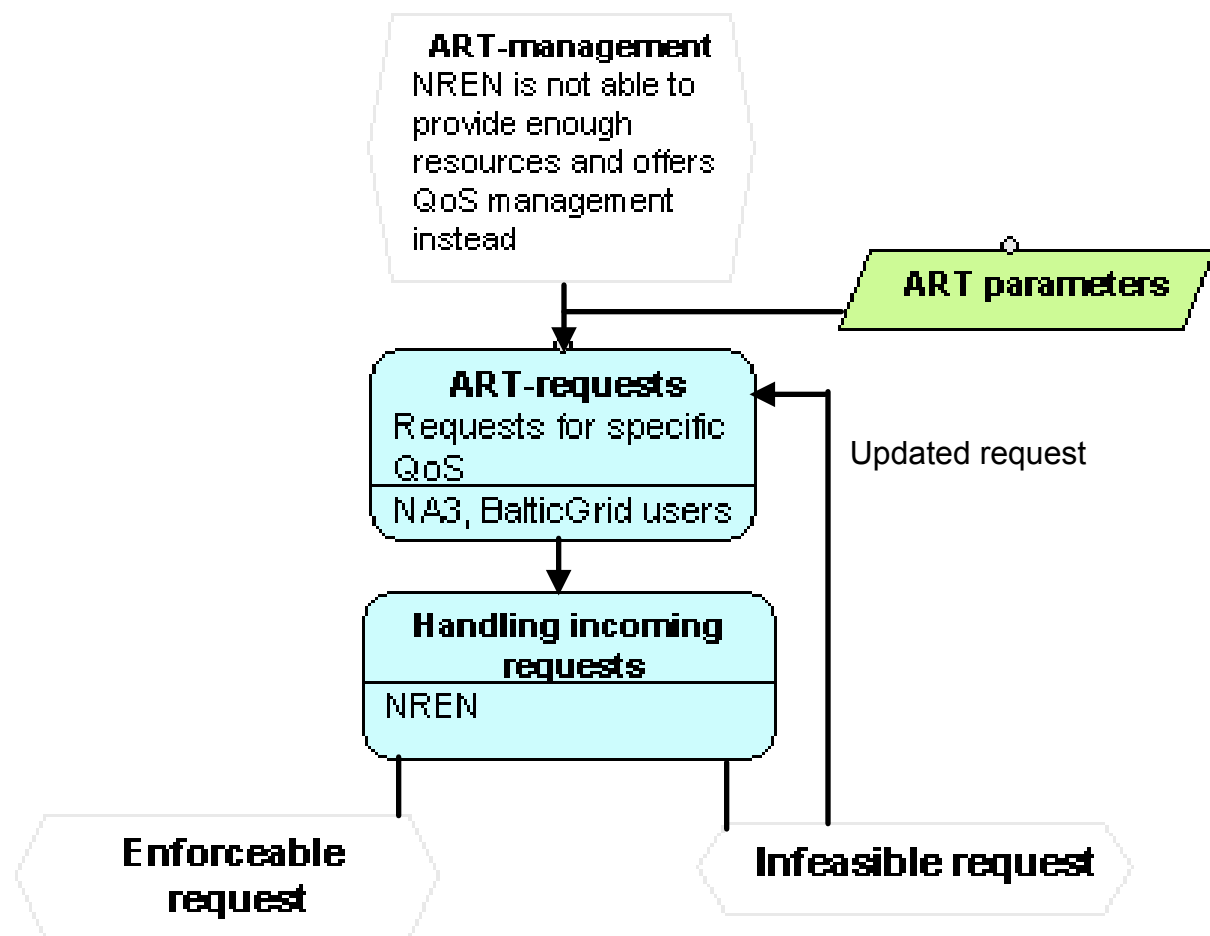
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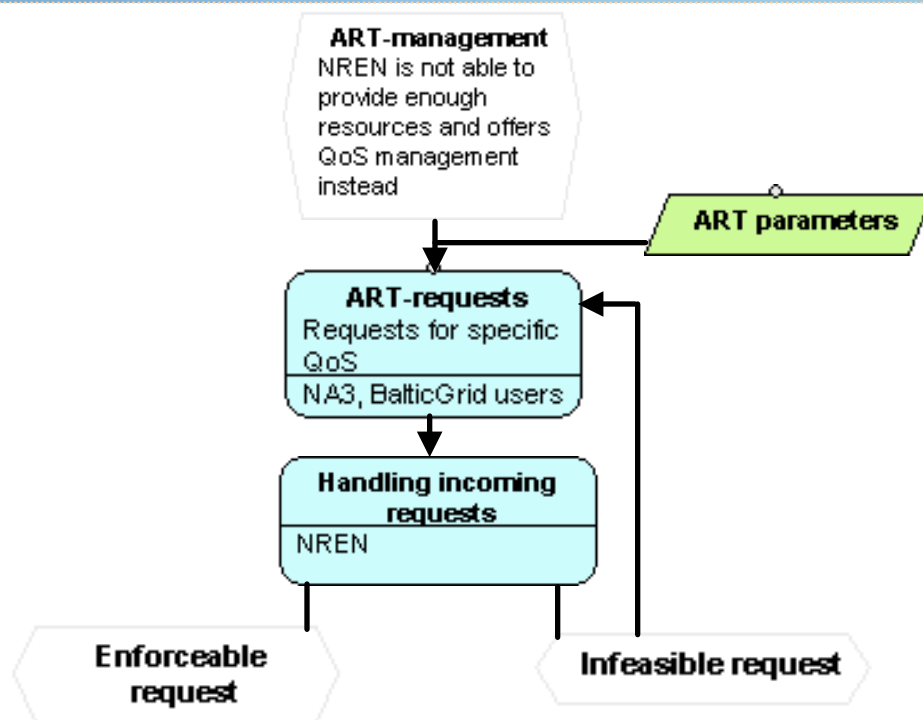
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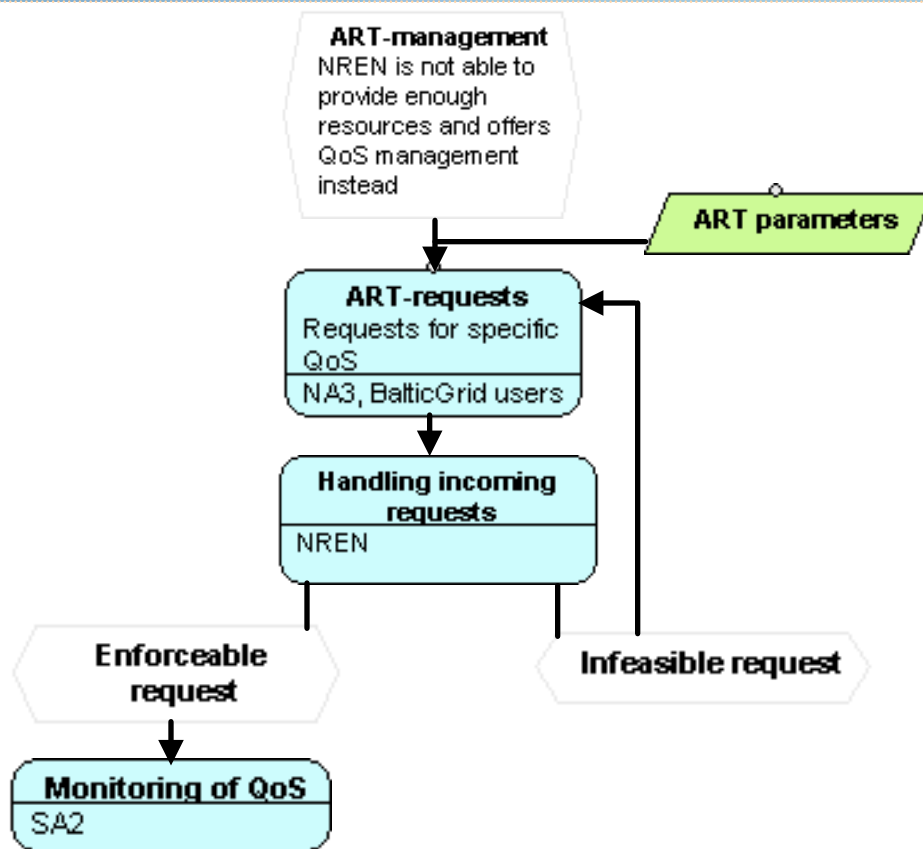
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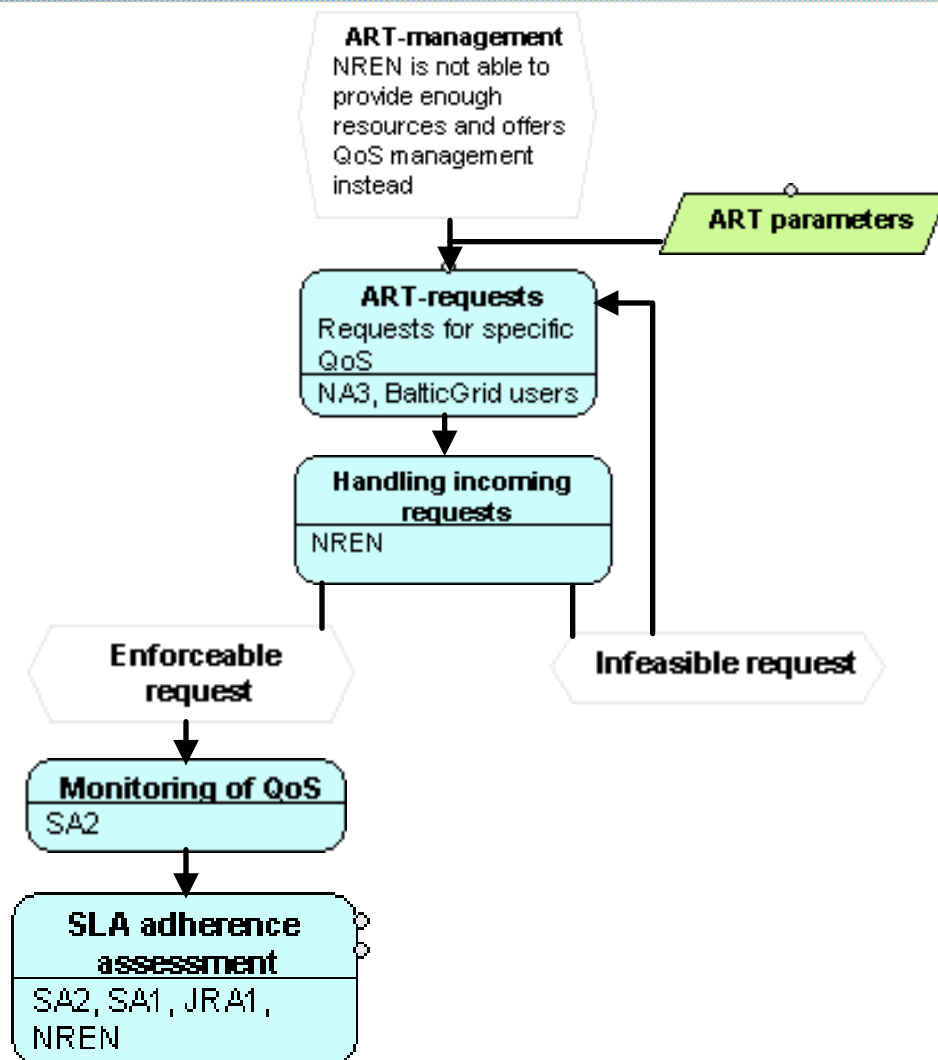
# Situation Overview



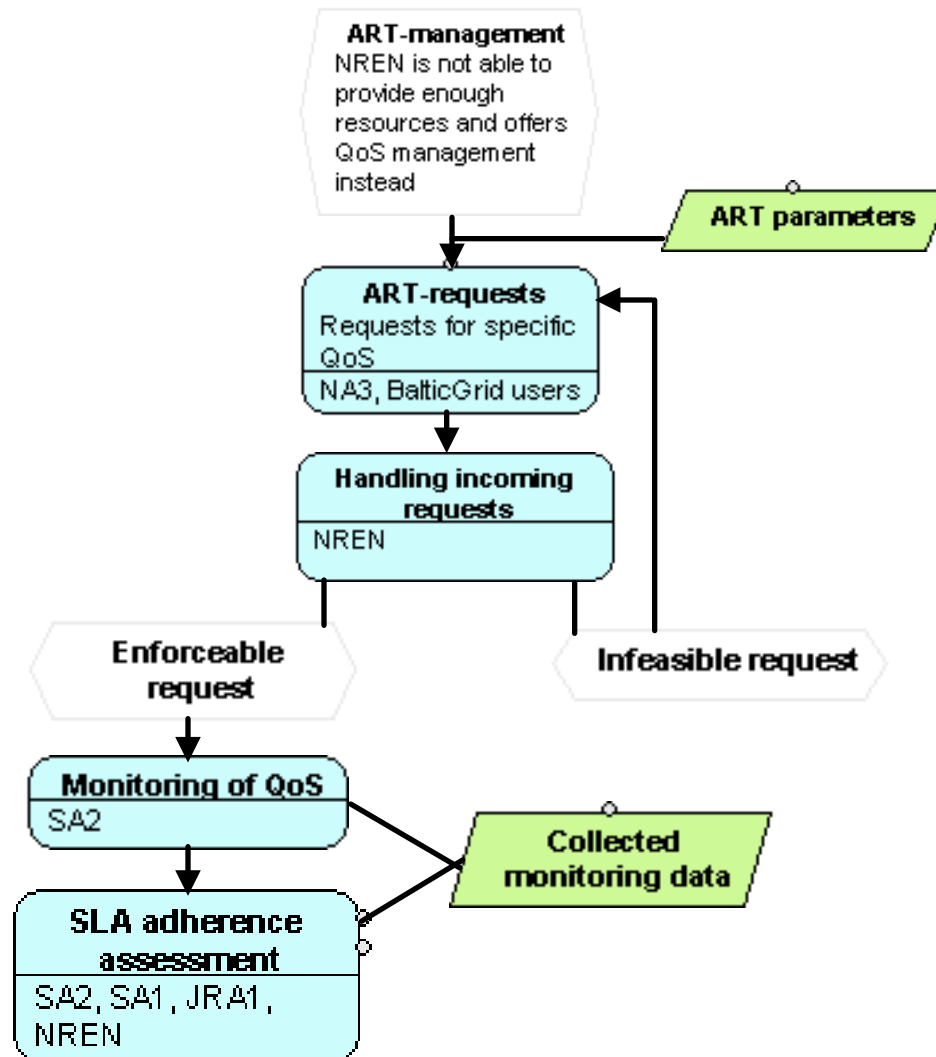
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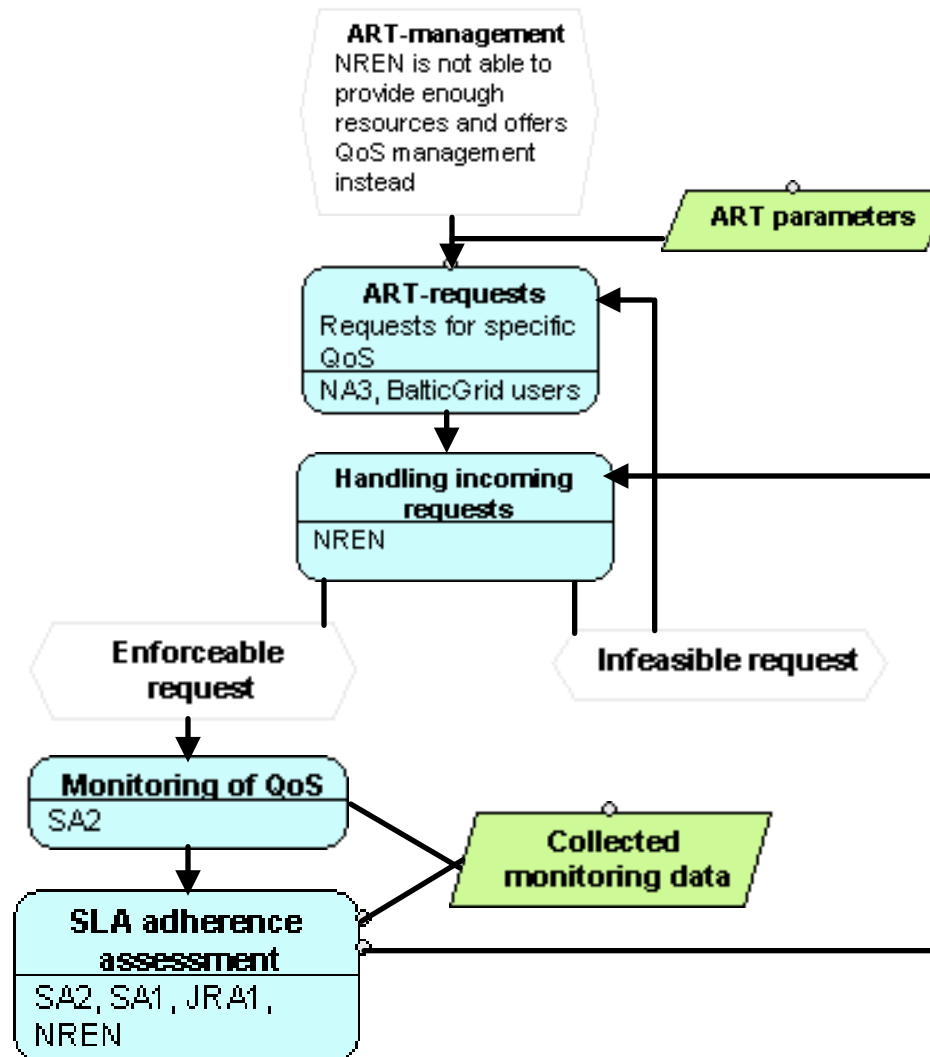
# Situation Overview



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# Structure of SLA

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# Structure of SLA

- General provisions



# Structure of SLA

- General provisions
  - Purpose and goals of SLA



# Structure of SLA

- General provisions
  - Purpose and goals of SLA
  - Definitions



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  - Purpose and goals of SLA
  - Definitions
  - Term of Agreement



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  - Definitions
  - Term of Agreement
  - Duties and responsibilities of Parties, including Demarcation points



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  - Definitions
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  - Monitoring SLA adherence

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  - Purpose and goals of SLA
  - Definitions
  - Term of Agreement
  - Duties and responsibilities of Parties, including Demarcation points
  - Monitoring SLA adherence
  - Termination and modification of SLA
  - Dispute resolution

- General provisions
  - Purpose and goals of SLA
  - Definitions
  - Term of Agreement
  - Duties and responsibilities of Parties, including Demarcation points
  - Monitoring SLA adherence
  - Termination and modification of SLA
  - Dispute resolution
- Specific provisions (Over-provisioning or ART-mangement)



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**Thank you!**

**Are there any questions?**