Operations Model for next year

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On behalf of EGEE operations

WLCG Service Coordination Meeting

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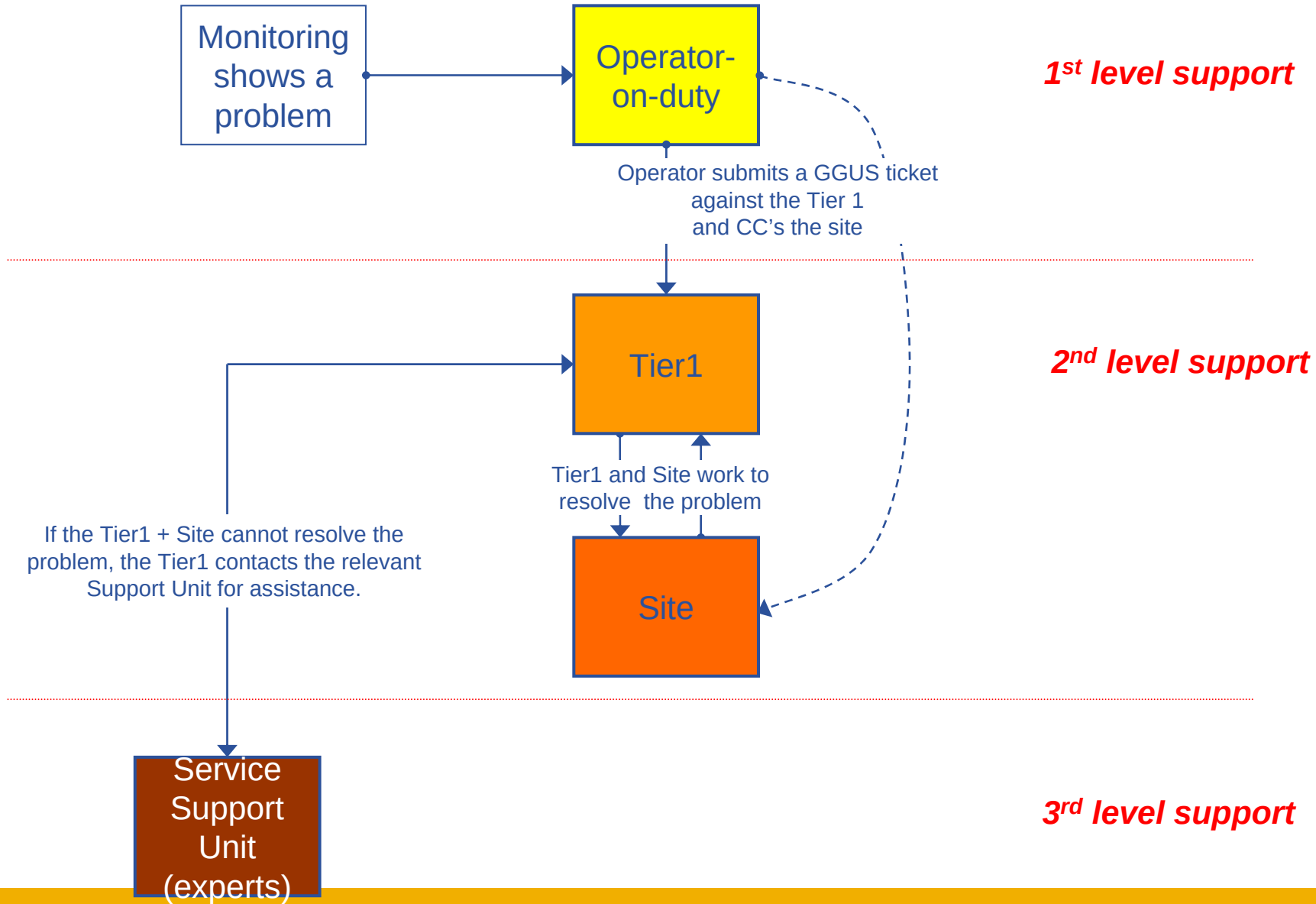
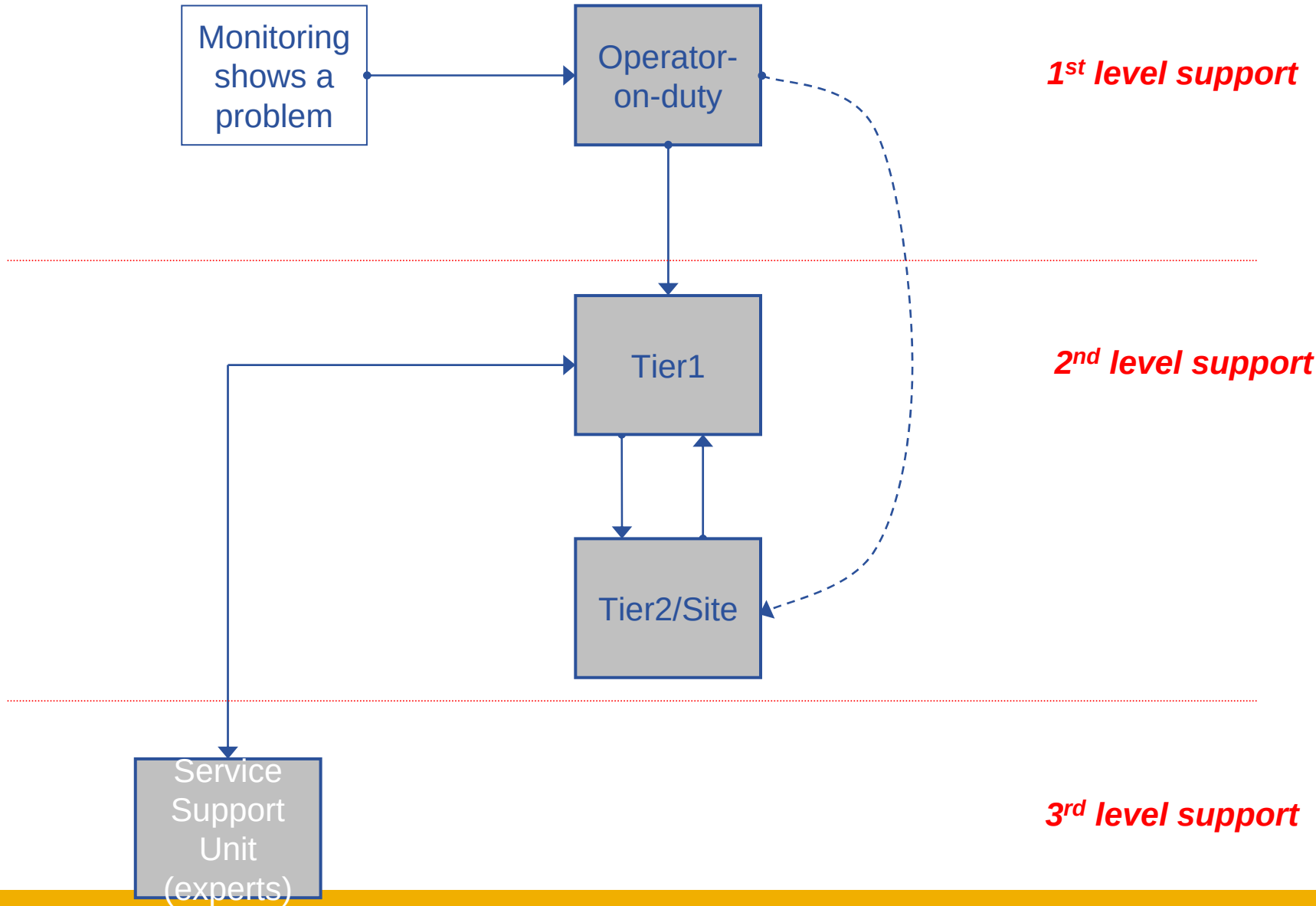
Objectives

- **Service monitoring**
  - To detect and report problems
  - Difference with site monitoring: done centrally, in an independent, homogeneous way. Might partially overlap with site monitoring
- **Measure service availability according to MoUs**
  - Measure, report, and compare to Service level Definitions
- **Set up effective operation support structure/tools to perform these objectives and react promptly**
  - Problem detection
  - Reporting
  - Problem solving
  - Escalation procedures

Operations Support flow



Operations Support flow



Monitoring: Site Functional Tests

- **Site Functional Tests (SFT)**
  - Framework to test services at all sites
  - Shows results matrix
  - Detailed test log available for troubleshooting and debugging
  - History of individual tests is kept
  - Can include VO-specific tests (e.g. sw environment)

Test summary

	SD	JL	JS	CT	OK	total
dteam	15	12	4	6	139	176
lhcb	15	81	5	35	39	175

Colours definition

SD	Scheduled downtime	#a3a3a3
JL	Job list match failed	#aab3ff
JS	Job submission failed	#f4876b
CT	Critical tests failed	#f9d48e
NT	Non-critical tests failed	#f2f98e
OK	OK	#b2f98e

Test abbreviations

csh	CSH test
swdir	VO software directory
rgma	R-GMA
dirac-test	Dirac full test
ver	Software Version (WN)
wn	WN host name
ca	CA certs version
crl	CRL timestamp test
rm	Replica Management
votag	VO Tag management
js	Job submission
bi	BrokerInfo

	St.	Site Name	Site CE	VO dteam												VO lhcb		
				St.	js	ver	wn	ca	rgma	bi	csh	rm	votag	swdir	crl	St.	js	dirac-test
	AsiaPacific																	
1.	CT	INDIACMS-TIFR	ce.indiacms.res.in	CT	Q	2 6 0	I	Q	Q	Q	Q	X	Q	Q	!!!	JL	X	??
2.	OK	TW-NCUHEP	grid01.phy.ncu.edu.tw	OK	Q	2 6 0	I	Q	Q	Q	Q	Q	Q	Q	!!!	JL	X	??
3.	OK	TOKYO-LCG2	dgce0.icepp.jp	OK	Q	2 4 0	I	Q	Q	Q	Q	Q	Q	Q	!!!	JL	X	??
4.	OK	Taiwan-LCG2	lcg00125.grid.sinica.edu.tw	OK	Q	2 6 0	I	Q	Q	Q	Q	Q	Q	Q	!!!	JL	X	??
5.	OK	Taiwan-IPAS-LCG2	testbed001.phys.sinica.edu.tw	OK	Q	2 6 0	I	Q	Q	Q	Q	Q	Q	Q	!!!	JL	X	??
6.	OK	GOG-Singapore	melon.ngpp.ngp.org.sg	OK	Q	2 6 0	I	Q	Q	Q	Q	Q	Q	Q	!!!	JL	X	??
7.	OK	Taiwan-NCUCC-LCG2	ce.cc.ncu.edu.tw	OK	Q	2 6 0	I	Q	Q	Q	Q	Q	Q	Q	!!!	OK	Q	Q
8.	OK	LCG_KNU	cluster50.knu.ac.kr	OK	Q	2 5 0	I	Q	Q	Q	Q	Q	Q	Q	!!!	CT	Q	!!!
	BNL																	
9.	SD	BNL-LCG2	lcg-ce01.usatlas.bnl.gov	SD	X	??	??	??	??	??	??	??	??	??	??	SD	X	??
	Canada																	
10.	JL	TORONTO-LCG2	bigmac-lcg-ce.physics.utoronto.ca	JL	X	2 6 0	I	Q	Q	Q	Q	Q	W	Q	!!!	OK	Q	Q
11.	SD	CARLETONU-LCG2	lcg02.physics.carleton.ca	SD	X	??	??	??	??	??	??	??	??	??	??	SD	X	??
12.	OK	TRIUMF-LCG2	lcgce01.triumf.ca	OK	Q	2 6 0	I	Q	Q	Q	Q	Q	Q	Q	Q	OK	Q	Q
13.	OK	Umontreal-LCG2	lcg-ce.lps.umontreal.ca	OK	Q	2 6 0	I	Q	Q	Q	Q	Q	W	Q	!!!	OK	Q	Q

Service monitoring: sensors

Measuring availability and performance of the services

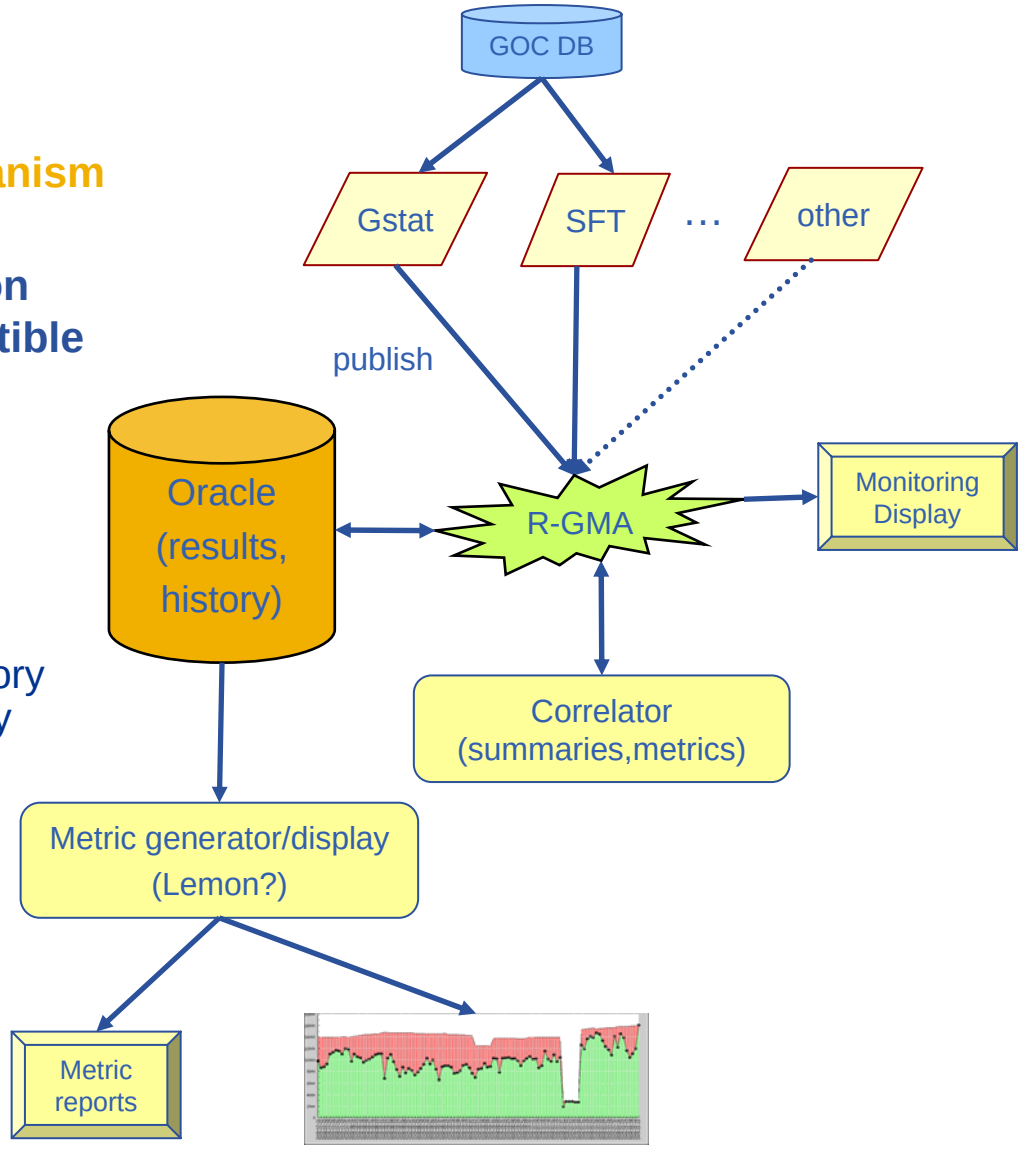
Service	*Class*	*Responsible*	*Status*
SRM 2.1	C	Dave Kant (RAL)	Planning
LFC	C	James Casey (CERN)	Planning
FTS	C	FTS support (CERN)	Planning
CE	C	Piotr Nyczyk (CERN)	Running
RB	C	Dave Kant (RAL)	Finished (not integrated)
Top level BDII	C	Min Tsai (Taipei)	Planning
Site BDII	H	Min Tsai (Taipei)	Running
MyProxy	C	Maarten Litmaath (CERN)	Planning
VOMS	C	Valerio Venturi (INFN)	Planning
R-GMA	H	Laurence Field (CERN)	Planning

C: Critical service

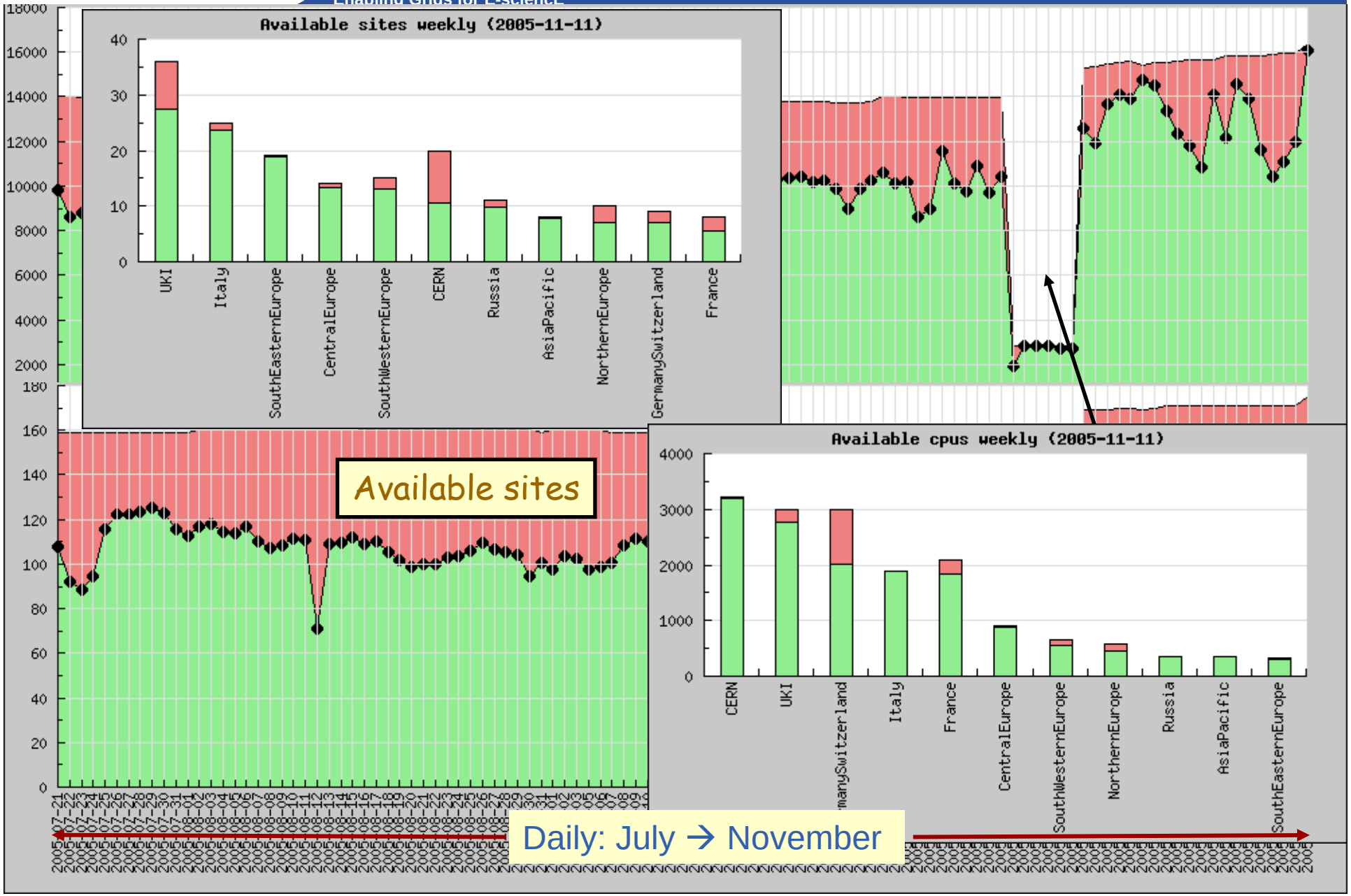
H: High availability

Monitoring Integration in R-GMA

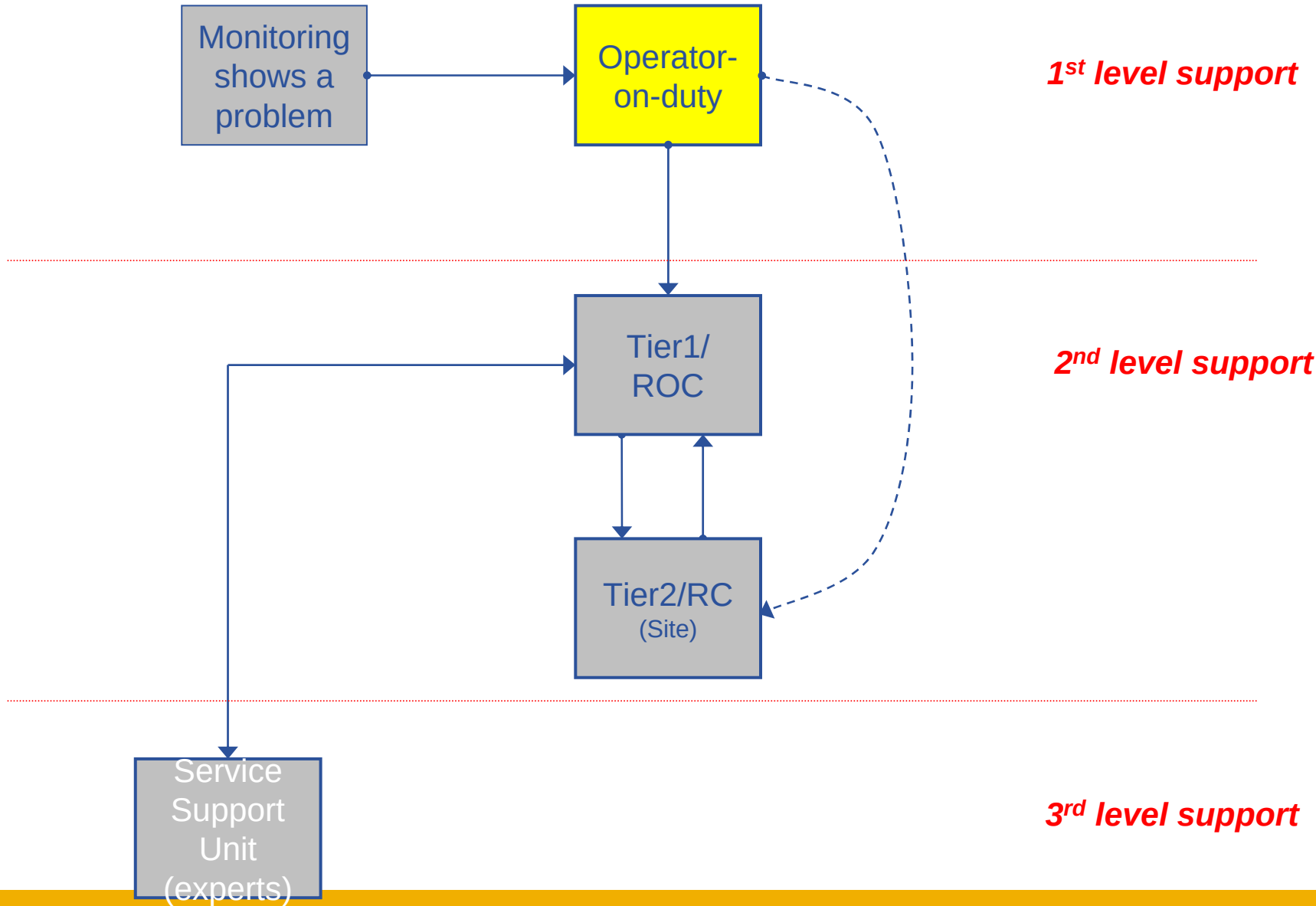
- **GOC DB source of:**
  - Sites and nodes to monitor,
  - Status (downtime, etc.)
- **R-GMA is used as transport mechanism for monitoring information**
- **Storage of SFT results in the Lemon Oracle data-base in R-GMA compatible mode**
- **All sensors publish results using common schema**
- **Scalability:**
  - Currently >170 sites
  - About 3.5M tuples for 1 month history with full detail. After one month only summary information
- **Aggregate views**
  - Dashboard, high level monitors
  - Eventually automated alarms
- **Summary information**
  - Generate metrics: site availability
- **Framework – longer term**
  - Generate alarms



Evolution of SFT metric



Operations Support flow

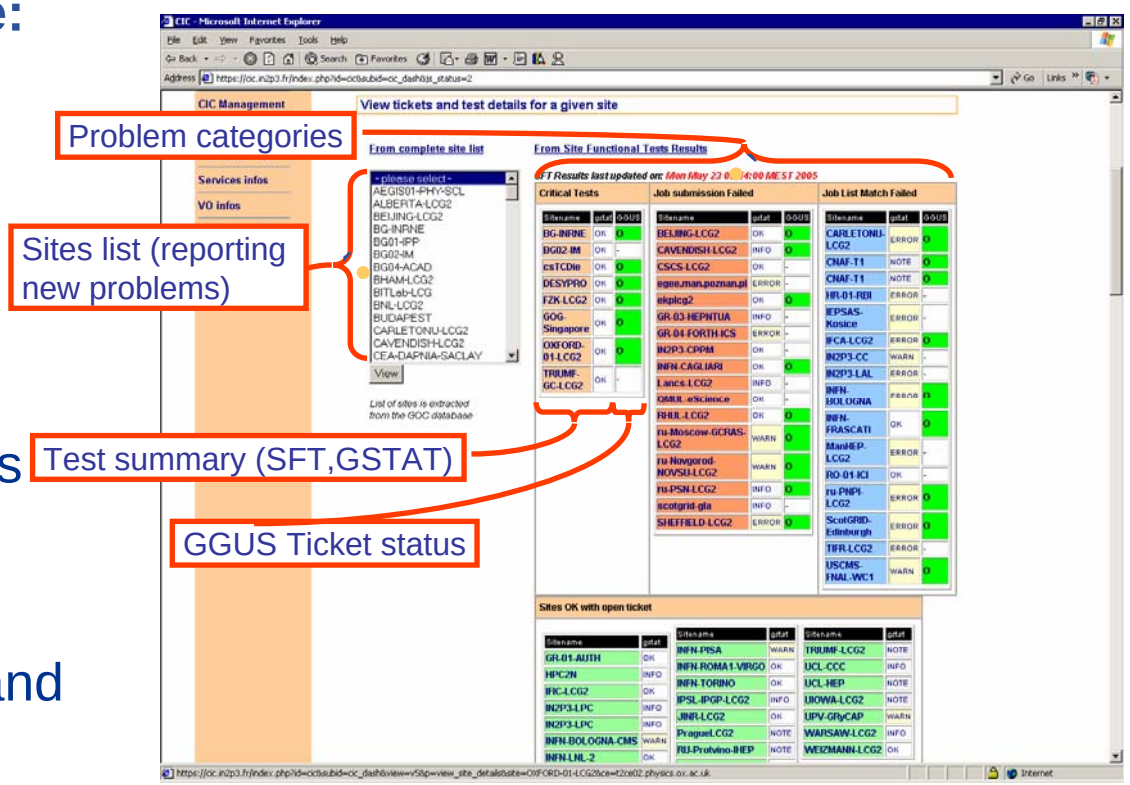


Operator on duty: description

- **Distributed:**
  - Weekly shifts, 1 pair of sites per week, 6 sites at the moment:
    - CERN, IN2P3, INFN, UK/I, Ru,Taipei
- **Responsibilities:**
  - Check alarms and monitoring results
  - Diagnose causes of services and sites failures
  - Open and follow up tickets
- **Coordination:**
  - Weekly operations meetings
  - Weekly hand-over logs through operator on duty portal
  - Quarterly face to face meetings for improving procedures and tracking progress on tools development and integration
  - Regular ROC, CIC managers meetings
  - Series of EGEE Operations Workshops
- **Geographically distributed responsibility:**
  - There is no “central” operation
  - Tools are developed/hosted at different sites:
    - GOC DB (RAL), SFT (CERN), GStat (Taipei), CIC Portal (Lyon)
- **Procedures described in Operations Manual**

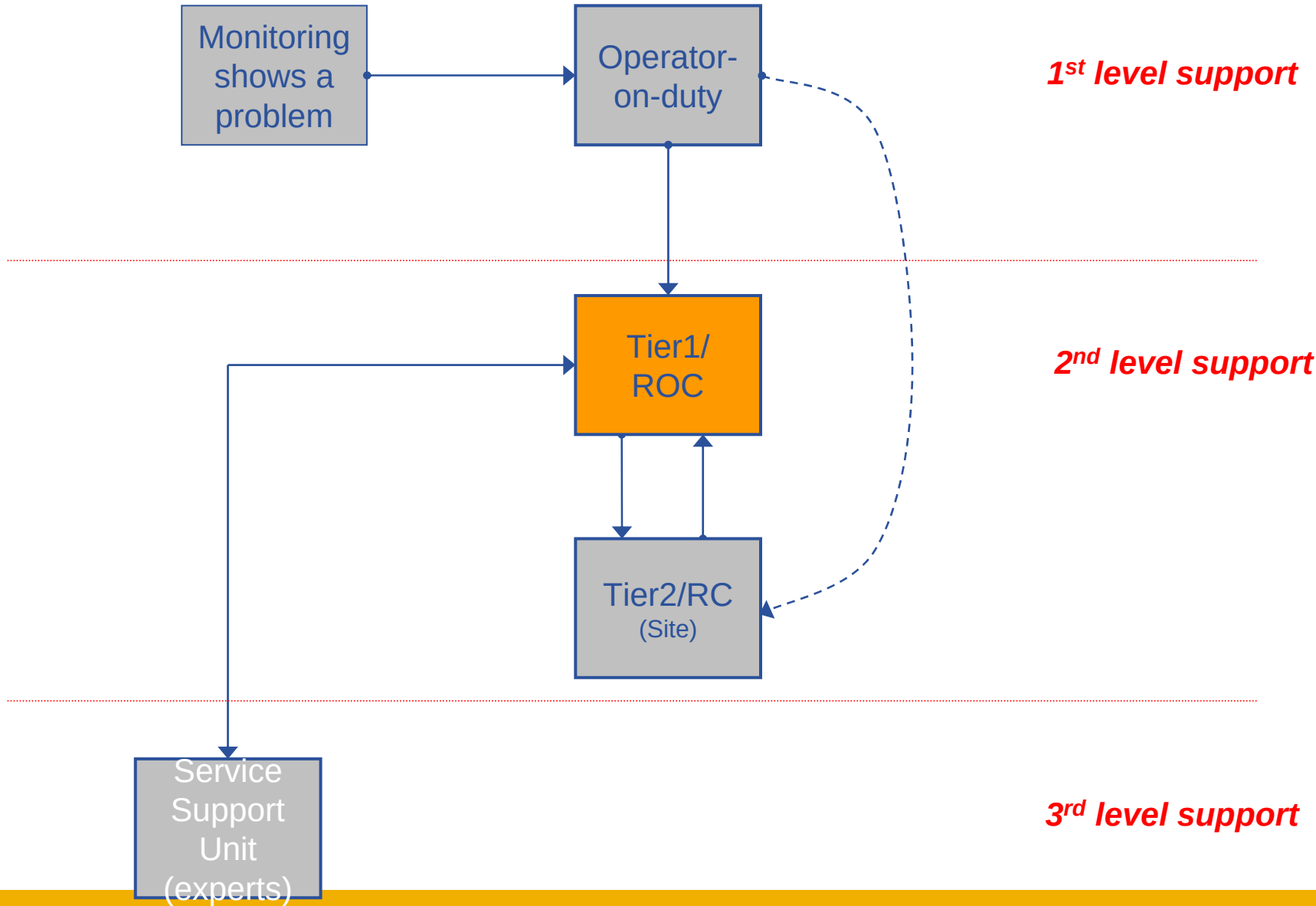
Operator on duty tools

- **Many complementary monitoring tools, core one:**
  - Site Functional Tests (SFT)
- **Dashboard provides top level view of problems:**
  - Integrated view of monitoring tools
  - Detailed site view with table of open tickets and links to monitoring results
  - Single tool for ticket creation and notification emails with detailed problem categorisation and templates
  - Ticket browser with highlighting expired tickets



- **Well maintained – is adapted quickly to new requirements/suggestions**

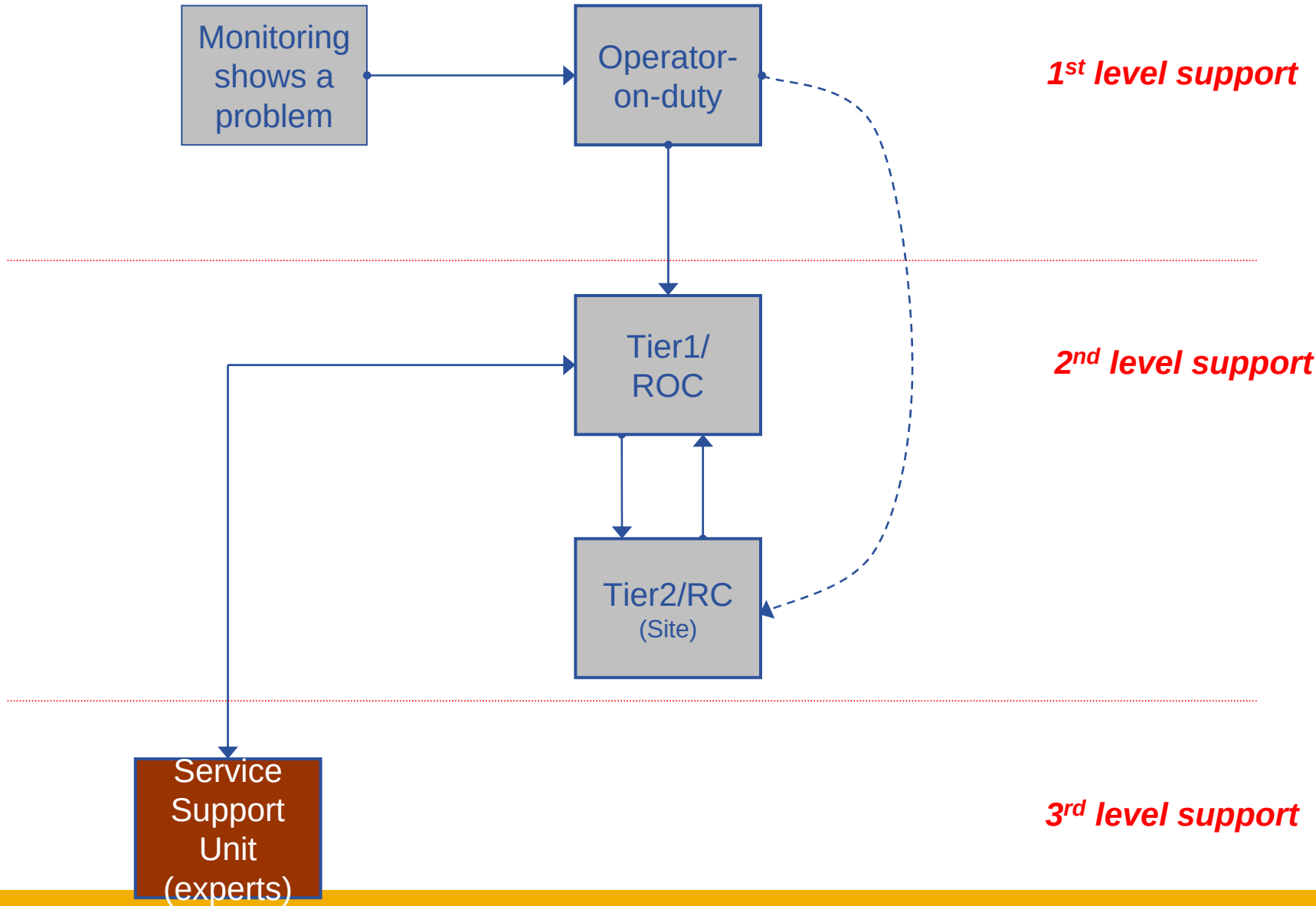
Operations Support flow



Tier-1: role and responsibilities

- Problems reported from Operator on duty to Tier-1
- Tier-1 are the RESPONSIBLE for following up and solving the problem, in direct contact with the associated sites (Tier-2)
- Tier-1 are the contact points with the Service Units, in case Tier-1 and site are not able to fix a problem
- Eventually Tier-1 are responsible for building up the operation competence to support all the associated sites

Operations Support flow



Support Unit: role and responsibilities

- **Support unit: group of experts, per service**
  - E.g. FTS support unit, VOMS support unit, etc
- **Notified by Tier-1 (2nd level support)**
- **Long term goal: should be rarely involved. This will not be the case in the beginning, while Tier-1s build up competence and learn from experience**
- **Should contribute to service checklist:**
  - Documentation
  - First level support procedures
  - SFT sensors
  - Training
  - …

Next steps

- **Finish critical sensors for critical services**
- **Integrate them into the framework**
- **Set up Support Units**
- **Get support material (FAQ, diagnosis instructions, training) related to critical services and make it better structured , centrally and uniformly available to operator on duty and Tier-1**
- **Evolve SFT framework**
  - Alarm display
  - etc

Operations Support flow