Unified Middleware Distribution (UMD): SW provisioning to EGI

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EGI-TSA1.3

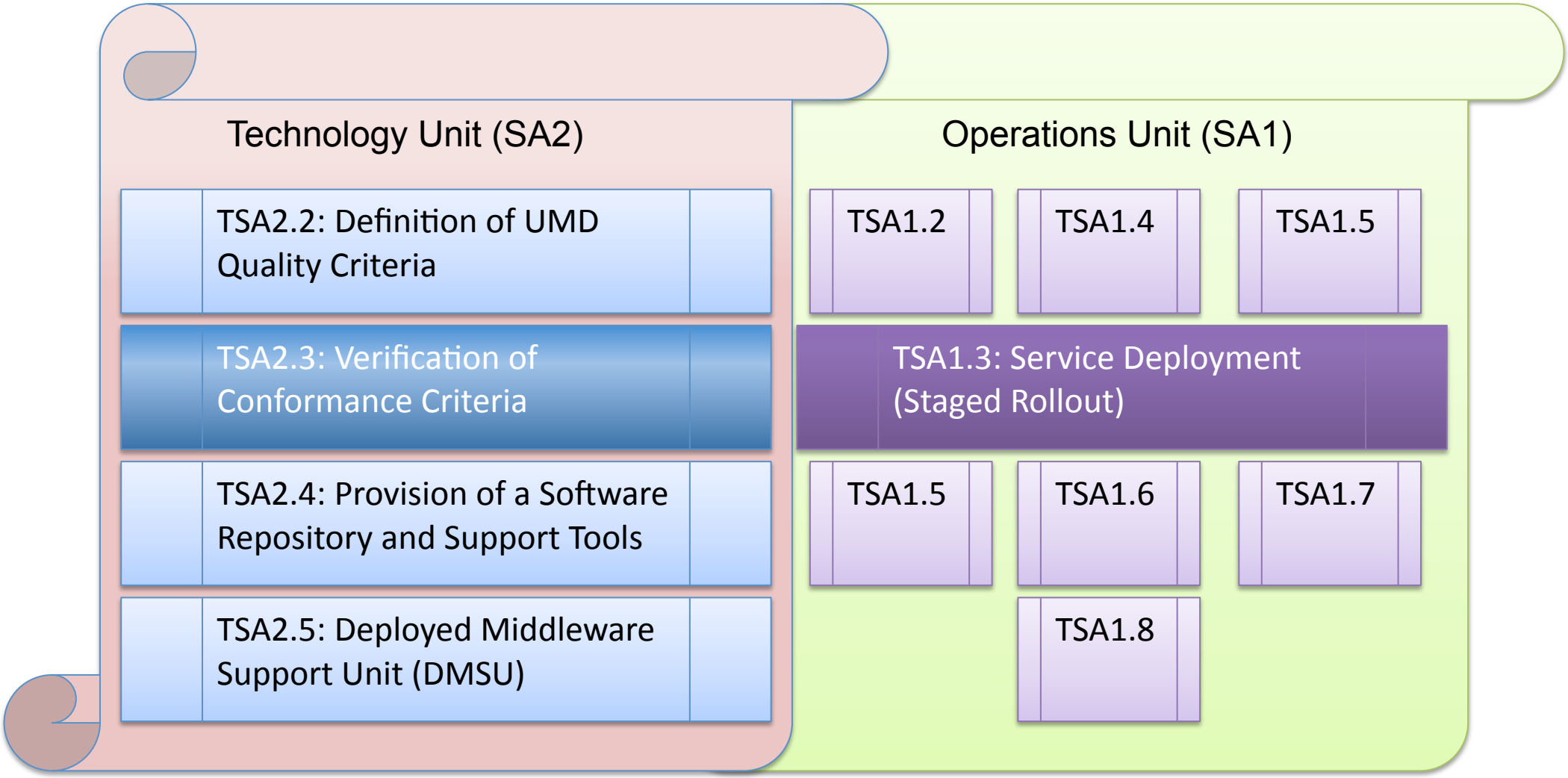
Outline

- Introduction
- EGI tasks
- SW provisioning to EGI.
- Early Adopters
- UMD: releases, contents, upcoming
- Some metrics and statistics.
- Issues and comments: "***Facts of Life***"
- References

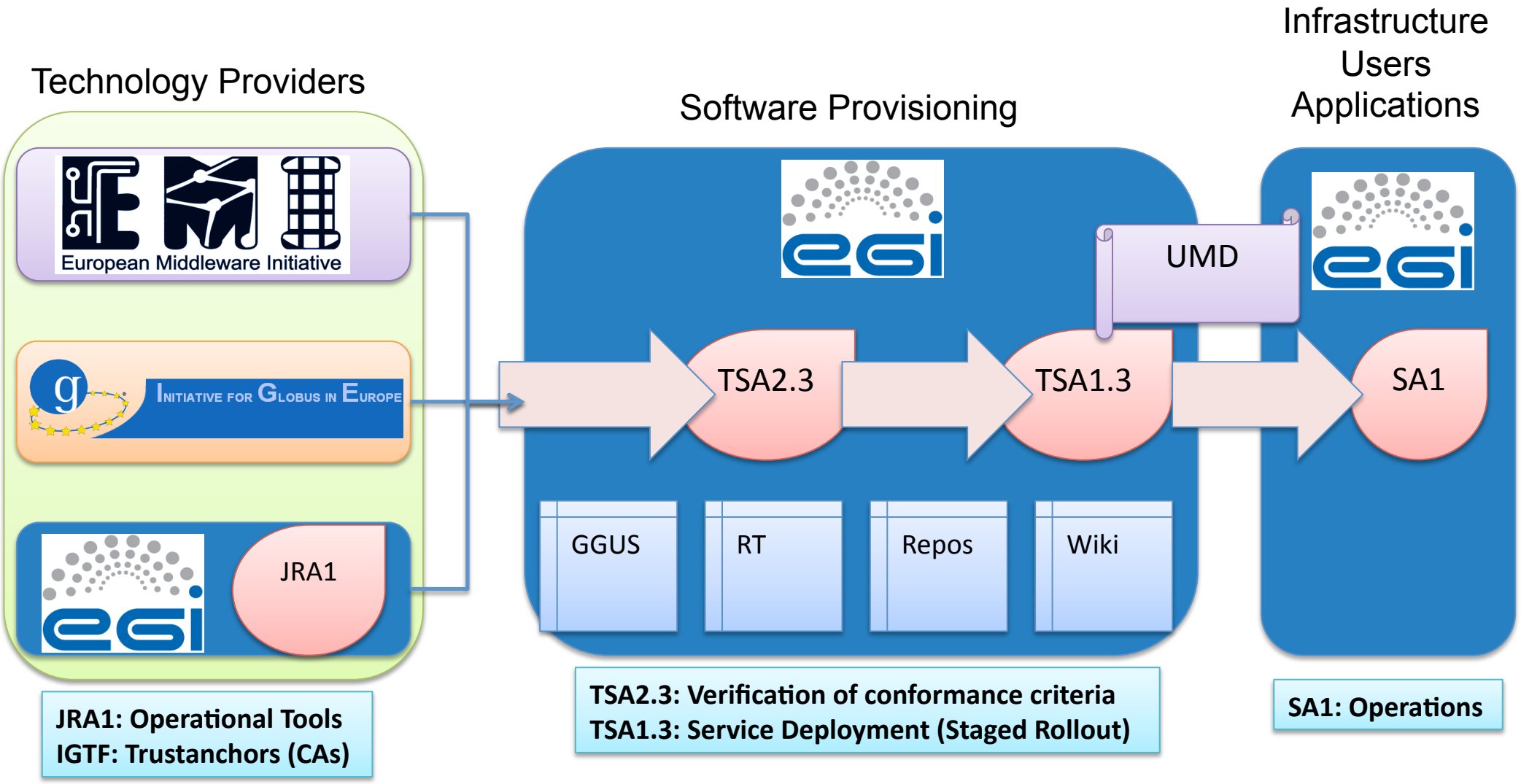
Introduction

- The SW provision to EGI comprises two processes:
  1. Verification of Quality Criteria
  2. **Staged Rollout**
- **Why?**
  - A set of sites that are the first ones to expose new versions of the MW in the production environment, before wider deployment or general availability.
  - The previous stages of testing (both EMI certification and EGI verification) are all done in limited and controlled testbeds.
  - As permitted to discover bugs/issues/problems, that where not possible to discover in the previous controlled environment, and to act accordingly:
    - Document as “known issues” and workarounds.
    - Open GGUS tickets.
    - Eventually rejecting the product.

EGI tasks (SA2 and SA1)

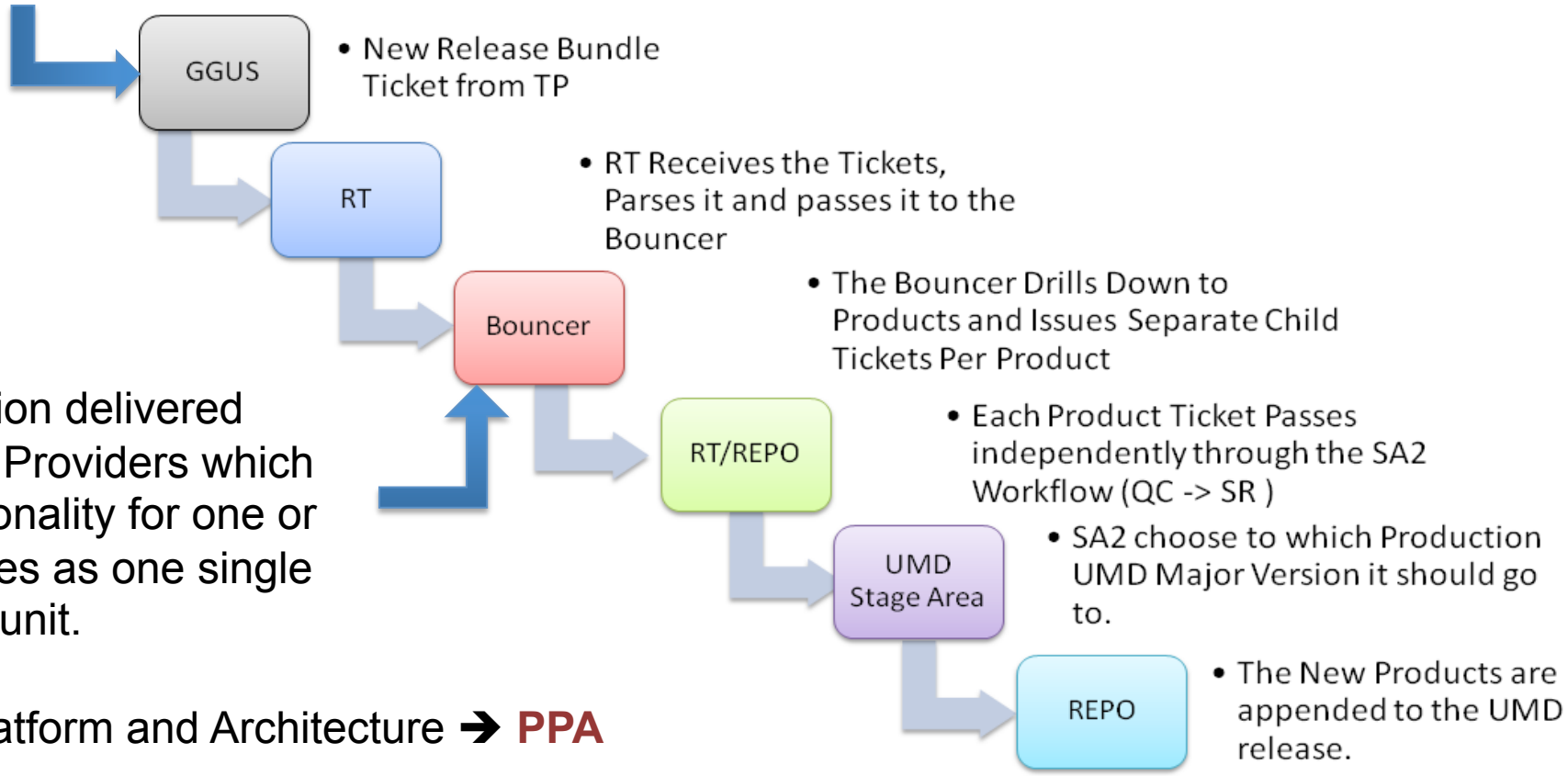


SW Provisioning: High level view



SW Provisioning: Implementation

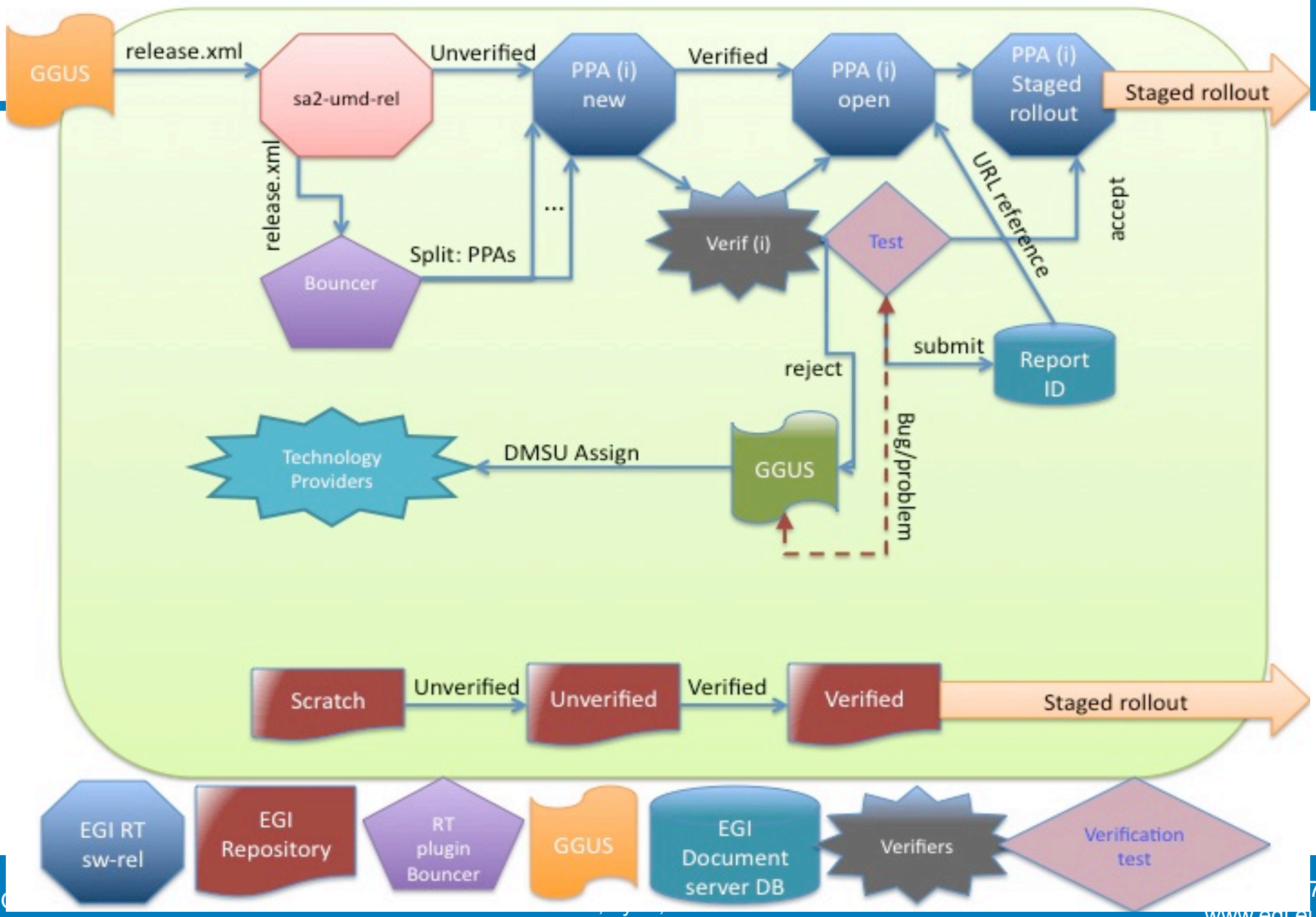
One release ➔ set of components

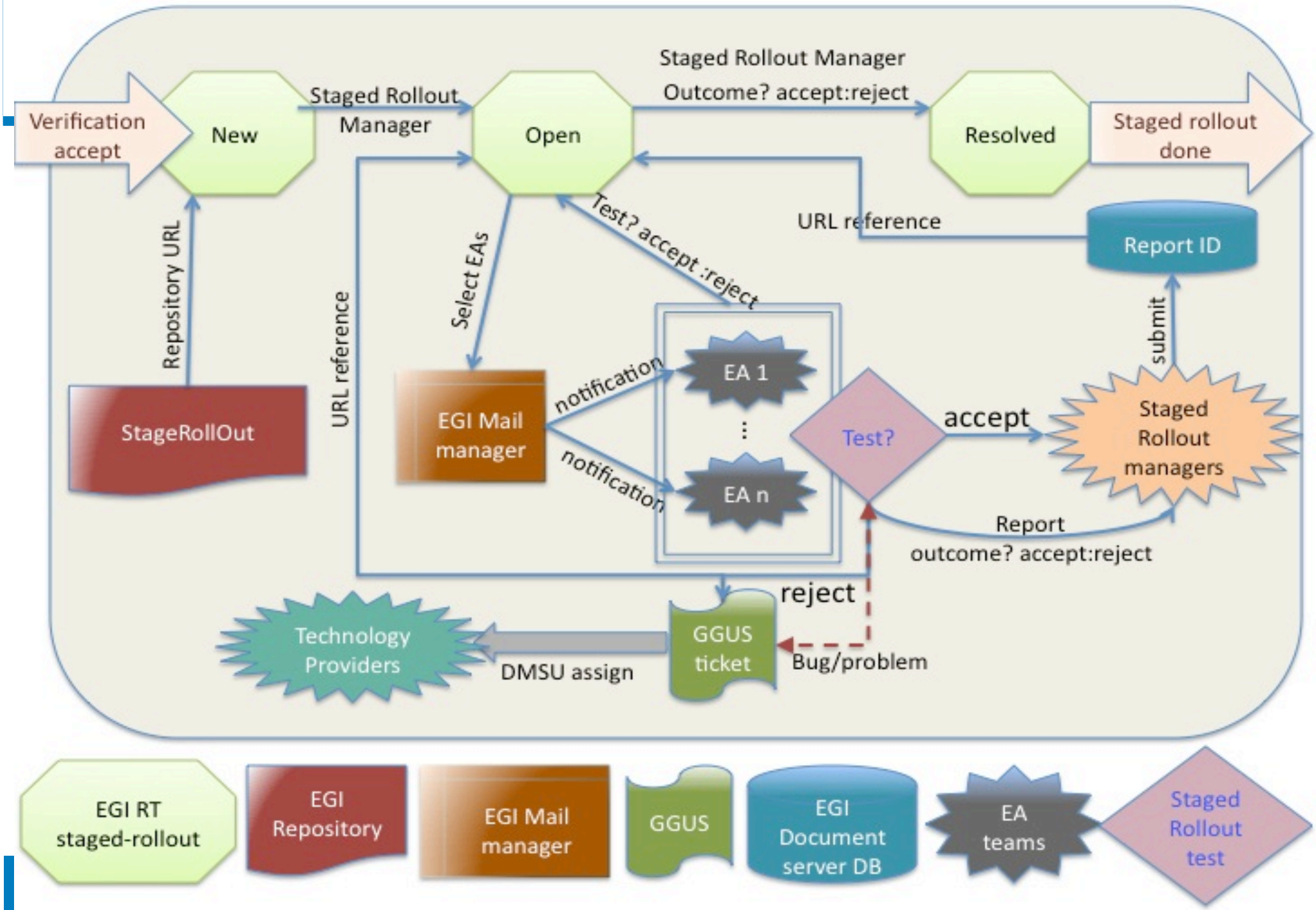


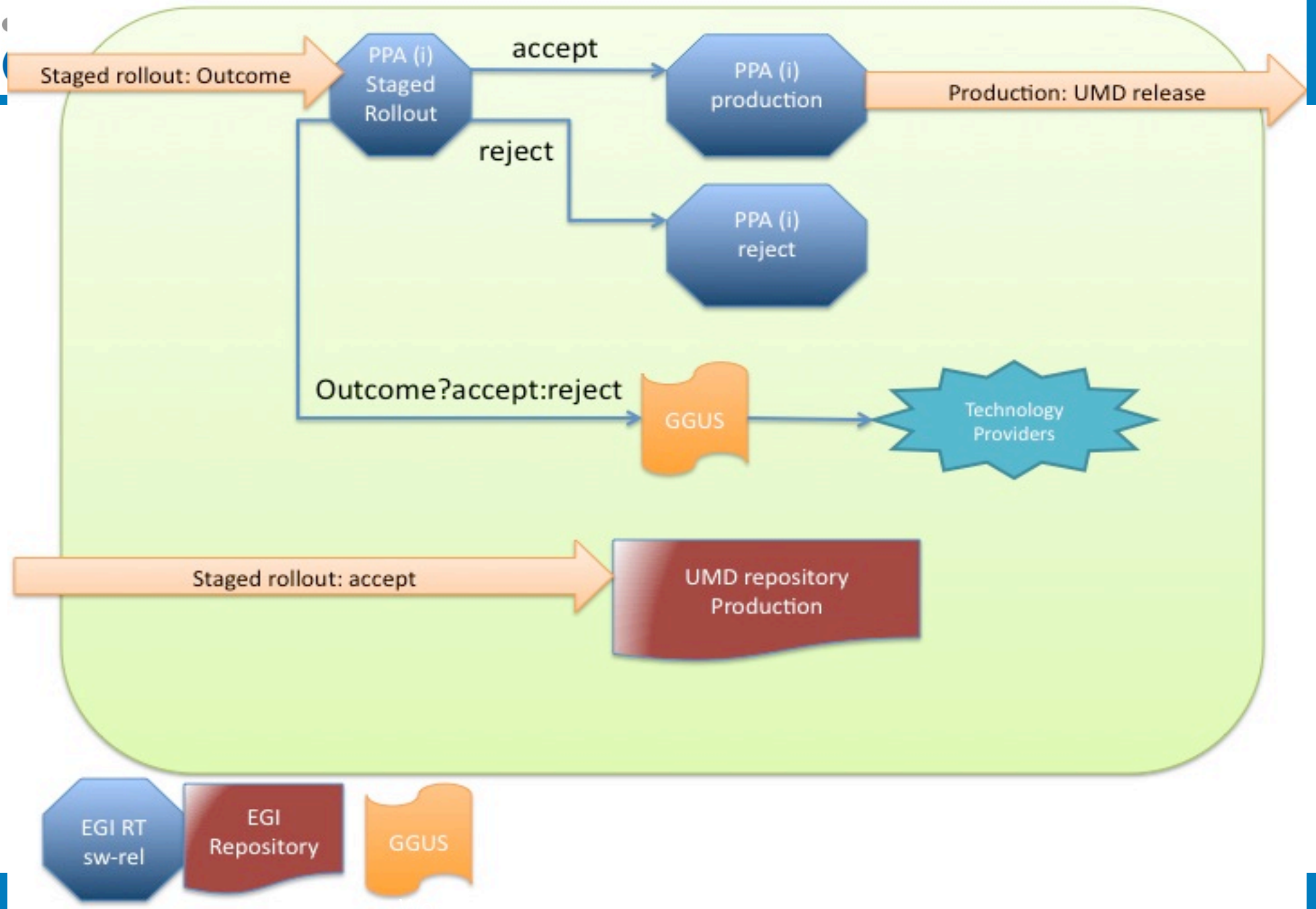
Product: solution delivered by Technology Providers which offer the functionality for one or more capabilities as one single and indivisible unit.

Product per Platform and Architecture ➔ **PPA**

Examples of products: CREAM-CE, DPM, LFC, etc.


GGUS
release.xml
sa2-umd-rel
Unverified
PPA (i) new
Verified
PPA (i) open
PPA (i) Staged rollout
Staged rollout
release.xml
Bouncer
Split: PPAs
...
Verif (i)
Test
URL reference
accept
submit
Report ID
reject
Technology Providers
DMSU Assign
GGUS
Bug/problem
Scratch
Unverified
Unverified
Verified
Verified
Staged rollout
EGI RT sw-rel
EGI Repository
RT plugin Bouncer
GGUS
EGI Document server DB
Verifiers
Verification test


Staged Rollout Manager
Outcome? accept:reject
Verification accept
New
Staged Rollout Manager
Open
Resolved
Staged rollout done
Repository URL
Select EAs
Test? accept :reject
URL reference
Report ID
submit
URL reference
StageRollOut
EGI Mail manager
notification
notification
EA 1
EA n
Test?
accept
Staged Rollout managers
Report
outcome? accept:reject
reject
Technology Providers
DMSU assign
GGUS ticket
Bug/problem
EGI RT staged-rollout
EGI Repository
EGI Mail manager
GGUS
EGI Document server DB
EA teams
Staged Rollout test


Staged rollout: Outcome
PPA (i) Staged Rollout
accept
PPA (i) production
Production: UMD release
reject
PPA (i) reject
Outcome?accept:reject
GGUS
Technology Providers
Staged rollout: accept
UMD repository Production
EGI RT sw-rel
EGI Repository
GGUS

WorkFlow: Detailed description I

Step	Actor	Tool	Action	Comment
1	Automatic	Repository	InVerification ⇒ StagedRollOut	Move software packages
2	Automatic	RT	queue: sw-rel ⇒ staged-rollout	Child ticket creation: All the Staged Rollout process occurs in this “staged-rollout” ticket
2.1	Automatic	RT: queue=staged-rollout	Notification to Staged Rollout Coordinator	1 – Owner=Nobody 2 – Status=New 3 – Contains links to release notes, documentation, bug fixes, etc. 4 – Contain link to Verification report. 5 – Contain link to staged rollout repositories
2.2	SR Coordinator	RT: queue=staged-rollout	1 – Ticket tab “Jumbo” 2 – Owner= Staged Rollout Manager 3 – Status=Open	“Staged Rollout Manager” responsible for that SW component: ARC, gLite (including dCache), UNICORE, Globus, Operational Tools
3	Automatic	RT: queue=staged-rollout	Notification	Sent to the Staged Rollout Manager
4	SR Manager	RT: queue=staged-rollout	1 – Tab = ”Jumbo” 2 – Select all “EA Teams” for the test 3 – In “Update Ticket”, insert EA notification template 4 – “Save changes” button	EA teams are added to the “Admin CC” field.
5	Automatic	RT: queue=staged-rollout	Notification	E-mail sent to the EA teams
6	**EA teams**	**RT or mail**	**Reply with:** **<accept|reject> <NGI>-<Site-name>**	**Within 1 working day**
7	SR Manager	RT: queue=staged-rollout	1 – Check how many EAs accepted the test.	
7.1	SR Manager	mail	If no EA accepted the test: send mail to ask for other EAs to do the test	Send mail to “early-adopters-XXX.mailman.egi.eu” mailing lists, and other (s)he sees fit to get other Early Adopter teams to perform the test.

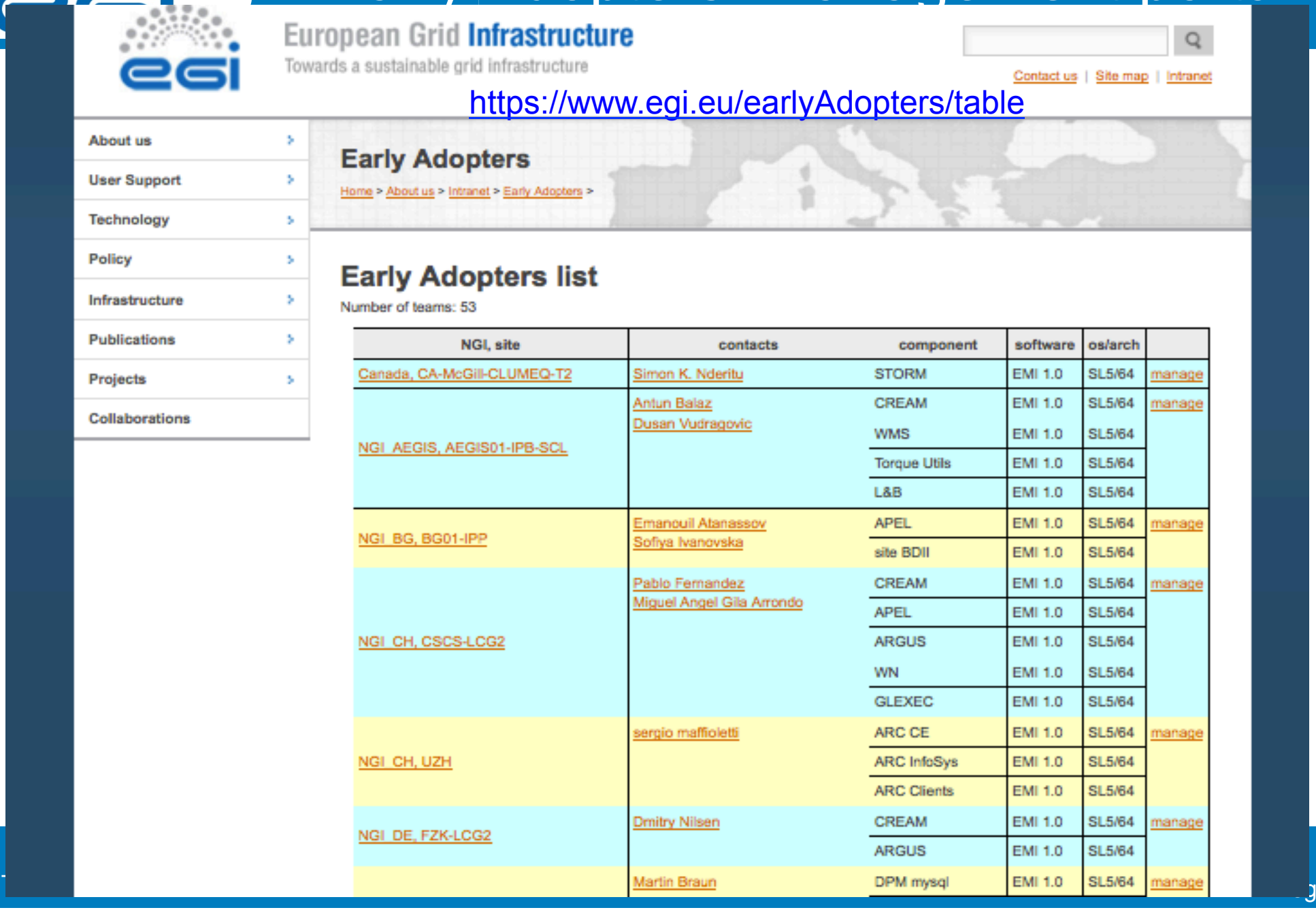
WorkFlow: Detailed description II

Step	Actor	Tool	Action	Comment
8	**EA teams**	**GOCDB**	**Optional:** **set flag=beta for the service**	**This tag may be set only during the staged rollout phase. If/when the component is release into production, this tag should be removed from the GOCDB.**
9	**EA teams**		**Staged Rollout: Installation, configuration, tests**	
10	**EA teams**	**RT or GGUS**	**Issues or bugs found**	**Discussion inside RT system, or open GGUS tickets. Link GGUS ticket to RT and reference in the final report.**
11	**EA teams**		**Service exposed to production environment and users/VO's**	**Period of 5 to 7 days.** **May be shortened or extended depending on the component or if it's an emergency or security vulnerability release.**
12	**EA teams**		**Fill and send Staged Rollout report to Staged Rollout managers**	**The report should contain as much information as possible. More specifically the correctness of the release notes, tests that have been preformed, and possible metrics when the service is exposed to production (like number of jobs per day, or number of transfers, what VOs are configured for that service, etc.).The name of the file should follow the naming conventions described in section 2.4.**
13	SR Manager	DocDB	Create an entry (ID) in DocDB and upload all reports.	
14	SR Manager	DocDB	Create summary report. Upload into the DocDB ID of the reports	
15	SR Manager	RT: queue=staged-rollout	1 – Insert link of DocDB ID in the ticket. 2 – Select: Outcome=<accept|reject> 3 – Status=resolved	Parent ticket "sw-rel" is notified. Gets the Staged Rollout report reference and Outcome.

Early Adopters

- EA teams:
  - Site administrators that committed to do Staged Rollout tests of certain components.
  - First to deploy/expose new versions of the middleware in production/ heterogeneous environment.
  - The deployment layout is always a final decision of the site managers and depends on the specificity of the service at the site.
  - SW reaching this state is assumed to have production quality, and no disruption to the service is expected.
    - (**Well not always true!!**)
  - Requested to report back about the overall process outcome
- Currently: 50 EA teams (sites) ➔ ~80 people

Early Adopters: management portal



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Early Adopters list

Number of teams: 53

NGI, site	contacts	component	software	os/arch	
Canada, CA-McGill-CLUMEQ-T2	Simon K. Nderitu	STORM	EMI 1.0	SL5/64	manage
NGI_AEGIS, AEGIS01-IPB-SCL	Antun Balaz Dusan Vudragovic	CREAM	EMI 1.0	SL5/64	manage
		WMS	EMI 1.0	SL5/64	
		Torque Utils	EMI 1.0	SL5/64	
		L&B	EMI 1.0	SL5/64	
NGI_BG, BG01-IPP	Emanouil Atanassov Sofiya Ivanovska	APEL	EMI 1.0	SL5/64	manage
		site BDII	EMI 1.0	SL5/64	
NGI_CH, CSCS-LCG2	Pablo Fernandez Miguel Angel Gila Arrondo	CREAM	EMI 1.0	SL5/64	manage
		APEL	EMI 1.0	SL5/64	
		ARGUS	EMI 1.0	SL5/64	
		WN	EMI 1.0	SL5/64	
		GLEXEC	EMI 1.0	SL5/64	
NGI_CH, UZH	sergio maffioletti	ARC CE	EMI 1.0	SL5/64	manage
		ARC InfoSys	EMI 1.0	SL5/64	
		ARC Clients	EMI 1.0	SL5/64	
NGI_DE, FZK-LCG2	Dmitry Nilsen	CREAM	EMI 1.0	SL5/64	manage
		ARGUS	EMI 1.0	SL5/64	
	Martin Braun	DPM mysql	EMI 1.0	SL5/64	manage

Early Adopters: SW components table

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Teams per component

component \ os_arch	Glite 3.2 SL5/64	Ops Tools noarch	EMI 1.0 SL5/64	Globus noarch
AMGA	0	0	1	0
APEL	0	0	11	0
ARC CE	0	0	5	0
ARC Clients	0	0	1	0
ARC InfoSys	0	0	3	0
ARGUS	0	0	8	0
CLUSTER	0	0	1	0
CREAM	0	0	14	0
dCache	0	0	1	0
DGAS	0	0	1	0
DPM mysql	0	0	6	0
GLEXEC	0	0	3	0
gLite-MPI	0	0	2	0
Globus	0	0	0	1
Hydra	0	0	0	0

Products Table

Component	N. EA Teams
AMGA	1
APEL	11
ARC CE	5
ARC Clients	1
ARC InfoSys	3
ARGUS	8
CLUSTER	1
CREAM	14
dCache	1
DGAS	1
DPM mysql	6
GLEXEC	3
gLite-MPI	**2**

Component	N. EA Teams
Hydra	0
IGTF CAs	**2**
L&B	4
LFC mysql	3
LFC oracle	1
LSF Utils	1
PX	1
SGE Utils	4
site BDII	7
STORM	5
top BDII	**2**
Torque clients	1
Torque Utils	7

Component	N. EA Teams
UI	**2**
UNCORE TSI	1
UNICORE Gateway	2
UNICORE HILA	1
UNICORE Registry	2
UNICORE UCC	1
UNICOREX	2
UNICORE XUUDB	1
UVOS	2
VOMS mysql	4
WMS	6
WN	6
Globus	1
OPS tools: Nagios	1

HYDRA: not yet in EMI
AMGA: in verification

All “1’s” and “2’s” need EAs

UMD releases

- UMD1.0: 11th July 2011
  - **29 products** from EMI1
- UMD1.1: 1st August 2011
  - 3 product updates and **3 new** (from EMI)
- UMD1.2: 12th September 2011
  - 4 product updates and **1 new** (from EMI)
  - **4 products** (new from IGE Globus)
- UMD1.3: 31st October 2011
  - 10 product updates and **1 new** (from EMI)
  - 2 product updates from IGE
- *UMD1.4: 19th December 2011 (Next slides)*
- *UMD1.5: 30th January 2012 (Next slides)*

Products in UMD (as of 1.3): From EMI

EMI Product	UMD Version
AMGA	-
APEL	1.0
ARC CE	1.2
ARC Clients	1.0
ARC Infosys	1.1
ARGUS	1.0
BDII site	1.0
BDII top	1.0
CREAM	1.0
CREAM LSF Utils	1.0
CREAM Torque Utils	1.0
dCache	1.2

EMI Product	UMD Version
DGAS sensors	1.0
DPM	1.0
HYDRA	-
UI	1.0
WN	1.0
(S)GE utils	-
gLexec	1.0
gLite CLUSTER	1.0
gLite MPI	-
MyPROXY	1.0
L&B	1.0
LFC	1.0 (MySQL)
StoRM	1.1

EMI Product	UMD Version
Torque server	1.0
Torque client	1.0
UNICORE Client	1.0
UNICORE Gateway	1.0
UNICORE HILA	1.0
UNICORE Registry	1.0
UNICORE TSI	1.0
UNICORE WS	1.0
UNICORE XUUDB	1.0
UNICORE UVOS	1.0
UNICOREX	1.3
VOMS	1.0 (MySQL)
WMS	-

Products in UMD (as of 1.3): From IGE

IGE Product	UMD Version
Globus GridFTP	1.2
Globus RLS	1.2
Globus MyPROXY	1.2
Globus GRAM5	-
Globus GSISSH	-

Candidates for next releases

Now under verification or staged rollout

	UMD1.4 (19 Dec. 2011)

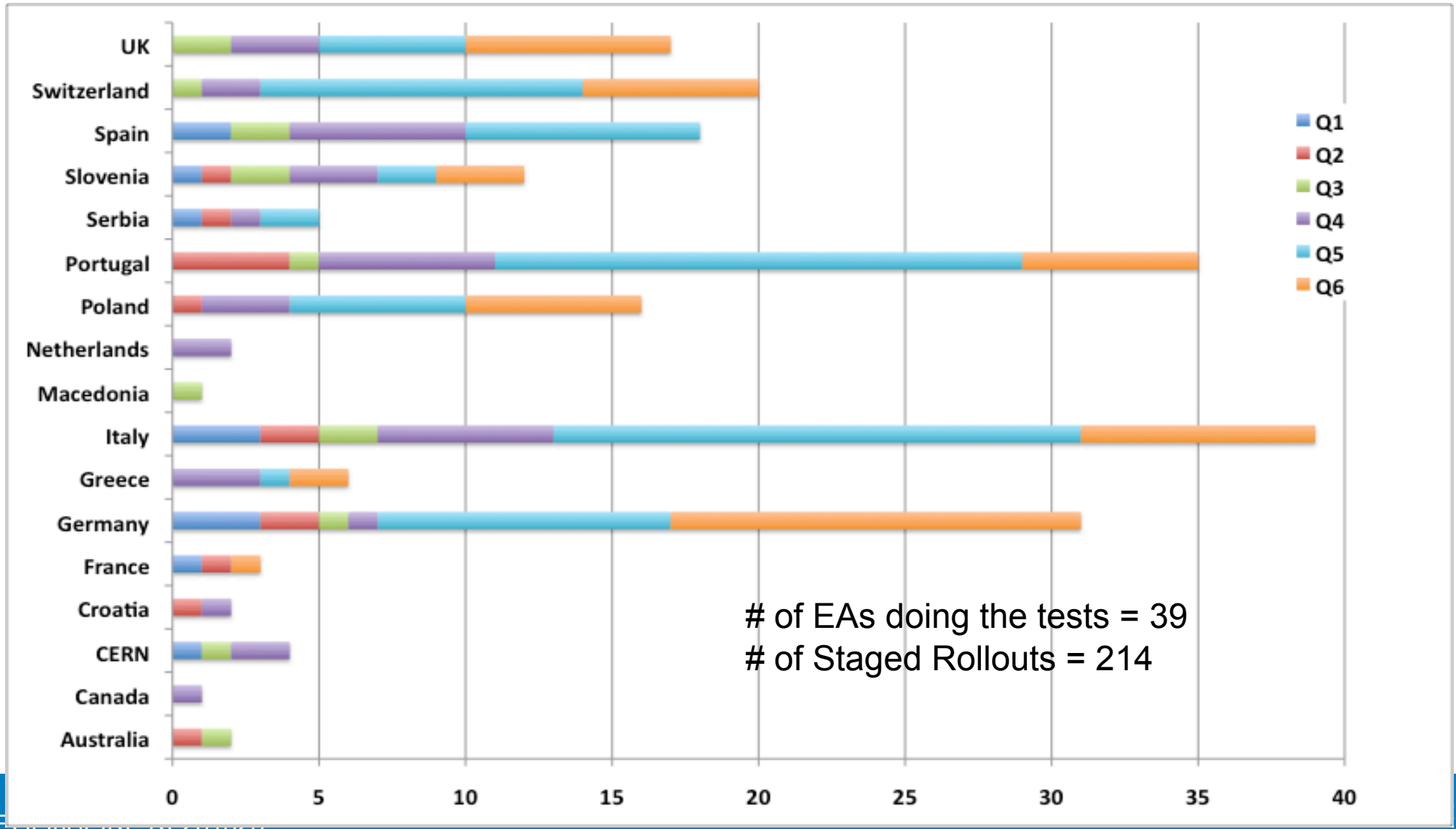
EMI 1	• APEL
	• CREAM plus:
	  • APEL parsers
	  • BLAH
	  • CEMON
	• CREAM (S)GE module (new)
	• Storm
	• MPI (new)
	• UNICORE UVOS
	• GFAL/lcg_utils (UI, WN)

IGE 1	• Globus GSISSH (new) • Globus MyPROXY • Globus RLS • Globus GridFTP

	UMD1.5 (30 Jan. 2012)
EMI 1	• WMS (new) • DPM • LFC mysql • L&B • UNICORE UVOS • UNICORE XUUDB • UNICORE Gateway • AMGA (new) • HYDRA (new)
IGE 2	• Globus GRAM (new) • GridSAM (new) • GridWay (new) • AdHoc (new)

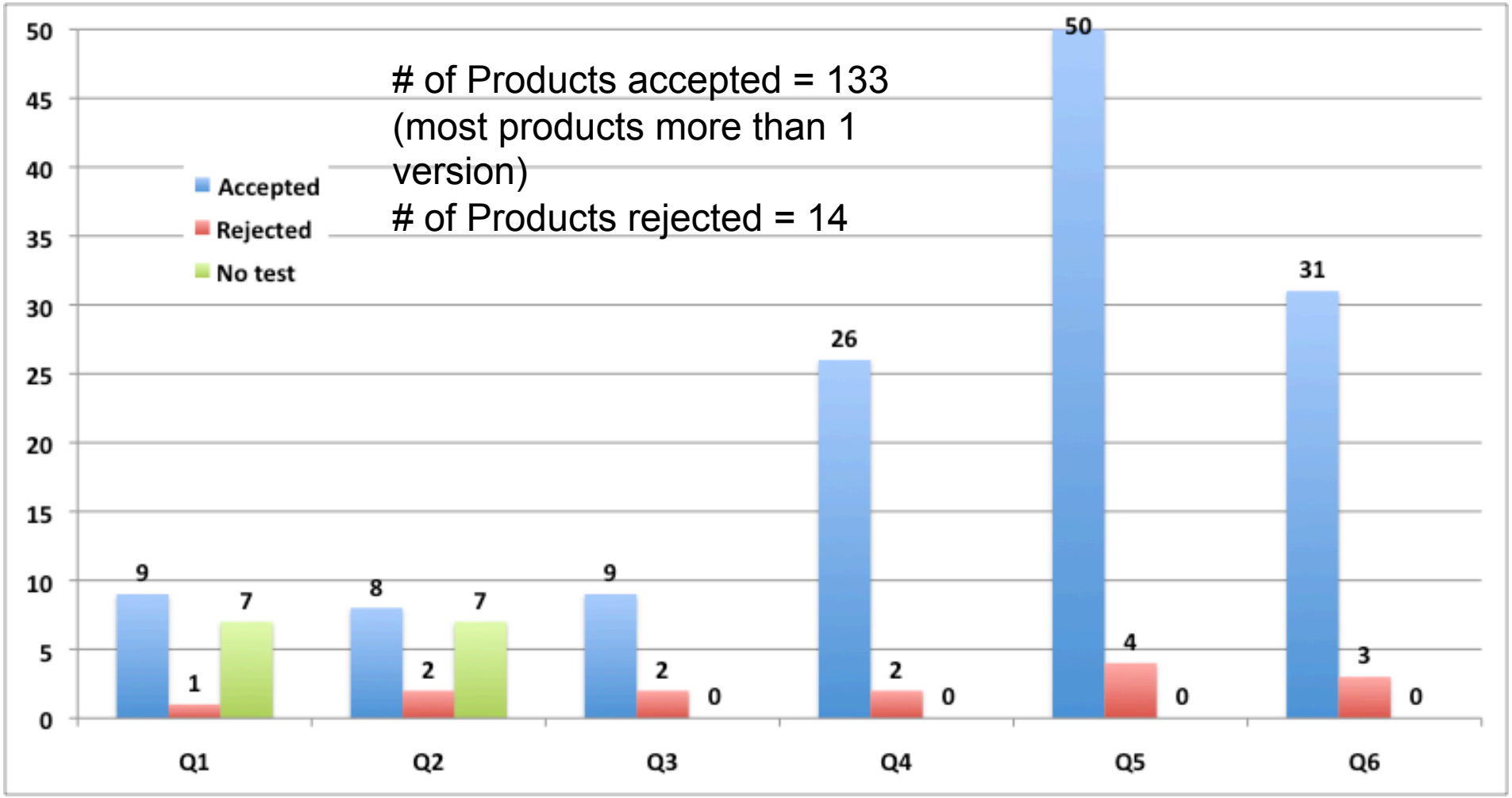
Metrics: # of Staged Rollout tests

of Staged Rollout tests per NGI and per Project Quarter: May 2010-Oct 2011

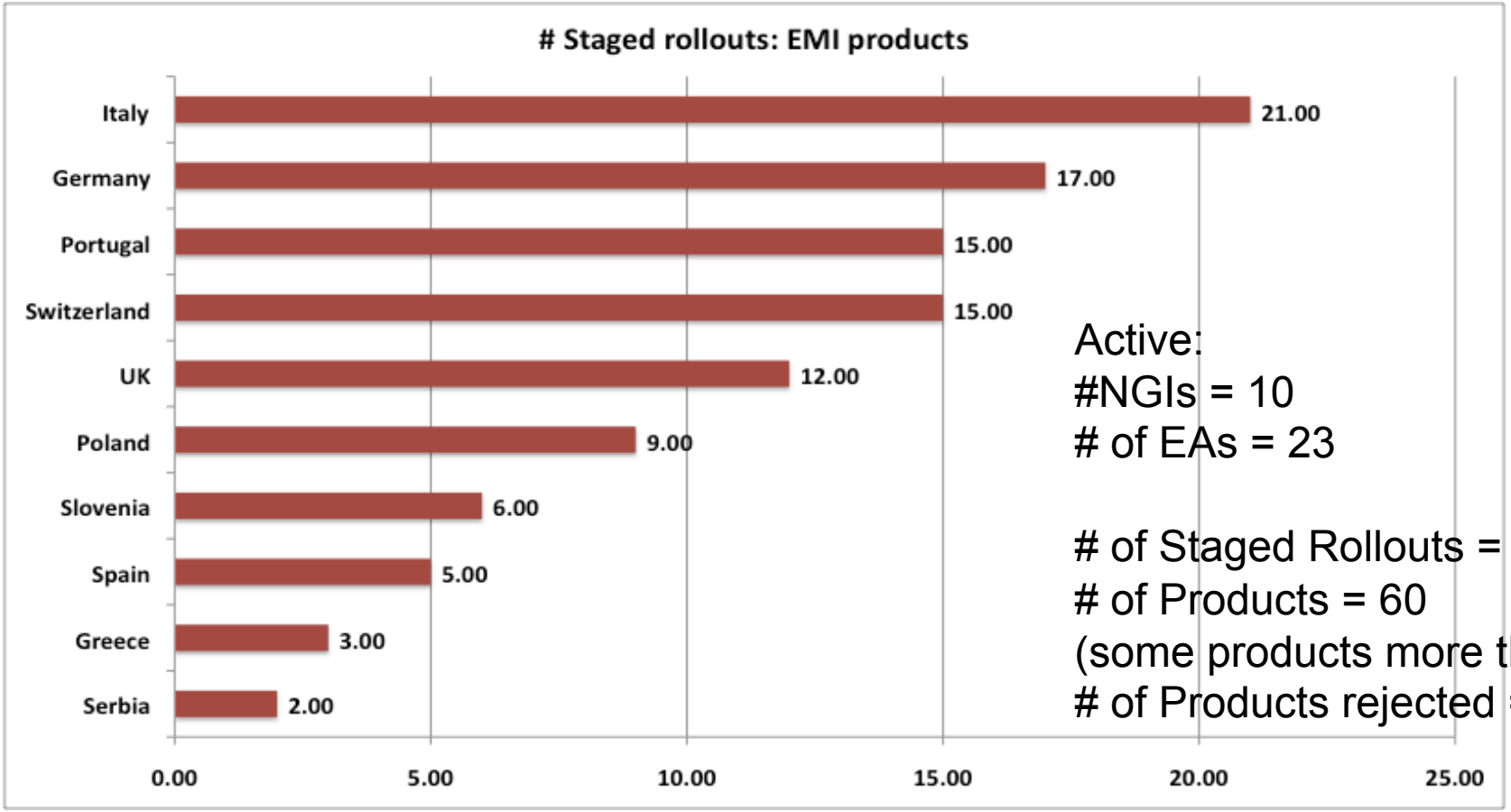


Metrics: # of SW components accepted, rejected…

Number of products: **Accepted**, **Rejected** and **Not tested** in Staged Rollout.
Includes: gLite 3.1 and 3.2, EMI1, IGE1, Ops tools (SAM/Nagios) and CAs



Stats: EMI products in UMD



Active:
#NGIs = 10
# of EAs = 23

# of Staged Rollouts = 105
# of Products = 60
(some products more than 1 version)
# of Products rejected = 5

NGIs in GOCDB = 38
of sites = 411 (yesterday in my topbdii)

EMI products “Not” in UMD

- Products released by EMI, but not included in UMD:
  - FTS (Oracle):
    - Main (only ?) community is WLCG T1’s (maybe also a few T2’s)
  - LFC (Oracle):
    - Main community WLCG T1’s (maybe also a few T2’s), other communities like “biomed”?
    - CC-IN2P3 is EA for the gLite 3.2 flavour.
  - VOMS (Oracle):
    - Only used at CERN (AFAIK)

- It may be included in future UMD releases IF there are “Verifiers” and “Staged Rollout” sites to do it, a.k.a.
  - IF there are interested parties/sites on it.

Experience from UMD SW provisioning

- Tech. Provider open GGUS ticket: triggers the SW prov. process.
- RT ticket is opened ➔ Create child tickets for each product ➔ verification ➔ staged rollout.
- **“High load” for the verifiers and staged rollout managers, medium load for the EAs.**
  - Several technical issues detected in the wokflow: most of them solved.

Issues and comments: "*Facts of Life*" I

- Contradictory or Complementary "facts":
  - **Sites**: some, strive for stability and as low as possible upgrade rate.
  - **Sites**: others, will "jump" for new versions if they have real and annoying issues.
  - **Users/VO's**: some, want the latest "Night Build" of the MW clients or services (directly from the build server if possible)
  - **Users/VO's**: others, want the same stable/working version for at least the next decade(s) so as not to change their "apps/portals".

Issues and comments: "*Facts of Life*" II

- Huge load: large number of EMI products to be verified and staged rollout:
  - 1st Major release.
  - Several updates followed: more than 1 version of a product in the SW provisioning almost in parallel or close in time.
- dCache is taken by sites from dcache.org:
  - Release in EMI/UMD has somewhat outdated versions.
  - 2 sites did the staged rollout based on versions they had in the past or presently in production.
- ARC is taken by most sites from nordugrid.org. Similar reasons to dCache. Also, ARC sites deploy some variety of Linux flavours (not just SL5).

Issues and comments: "*Facts of Life*" III

- EMI release rate is every 3 weeks.
- UMD release rate around 1.5 month interval – planned to be "**Quarterly**" after update 1.5.
  - Except for urgent updates or security vulnerabilities.
- Verification and staged rollout have detected and open a quite large number of GGUS tickets (50+)
  - Some of those issues appeared only in the production environment (i.e. staged rollout)
  - Depending on the criticality/priority: GGUS tickets are closely scrutinized by both EMI and EGI and bound by Service Level Agreements between both parties.

Issues and comments: "*Facts of Life*" IV

- Staged rollout has been done in production instances in some cases, but also in test instances that are included in production:
  - For instance, services that are configured for "ops" and "dteam" VOs only to allow SAM/ Nagios monitoring, or also for other VOs in a limited way.
  - Some issues have appeared for particular cases (or use cases).
- We still need more EA teams even for already covered products:

- **Although ~ 100% of sites (and users) expect to have stable, robust, etc. MW products, there is a "price" to get there.**

Issues and comments: "*Facts of Life*" V

- A quotation from one of my previous presentations:
- "*Need to be involved earlier (much earlier) in beta testing, so that any issues that are discovered can be solved before the actual certification in EMI, and thus make it the next round of updates*".
  - As far/much as possible the beta testing should be done in "almost" production instances.
  - (There is an EMI certification testbed that interested sites can participate, but this is a limited and controlled environment.)

- Recently some EA sites have been involved in close collaboration with EMI, in the testing of new versions of the MW, such as:
  - WMS.
  - StoRM.
  - CREAM (S)GE module.

References

- WIKI
  - https://wiki.egi.eu/wiki/Staged-Rollout
  - https://wiki.egi.eu/wiki/Staged-rollout-procedures
  - https://wiki.egi.eu/wiki/UMD_Release_Schedule
- EA portal
  - https://www.egi.eu/earlyAdopters/
- RT:
  - https://rt.egi.eu/rt/
- EGI/UMD repository:
  - http://repository.egi.eu/
- EGI Milestones:
  - About the staged rollout
    - https://documents.egi.eu/public/ShowDocument?docid=478
  - About the SW provisioning
    - https://documents.egi.eu/public/ShowDocument?docid=505