



IDGF

International Desktop Grid Federation

**Enable the use of BOINC for new communities -
the IDGF experience**

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EDGI is supported by the FP7 Capacities Programme under contract nr RI-261556.





IDGF (International Desktop Grid Federation) objectives

- Build a community of those people who are interested in any form of desktop grids including
 - Different technology developers (BOINC, Condor, XtremWeb, OurGrid, SZDG, etc.)
 - Desktop grid operators and system admins
 - Application developers who want to port applications to DG systems
 - End-users who want to run applications on DG systems
 - Service grid providers who would like to extend their resources with DG resources
 - Scientists who want to build campus grid



By Leslie Versweyveld

RSS (Opens New Window)

Showing 1 - 1 of 25 results.

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Join today our:

- 130 Individual members
- 33 Organisational members

Proud participant of IDGF

International Desktop Grid Federation Supported by EDGI & DEGSICO http://desktopgridfederation.org

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IDGF on Twitter

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Video channel

- [Video channel](#)
- [IDGF on Vimeo](#)

Find members

Find:

- [Organisational members](#)
- [Individual members](#) (for IDGF members only)



Find volunteers

Are you operating a Volunteer Desktop Grid and want to increase the number of volunteers?

- [Look into the Road map - Desktop grids for eScience](#)
- [Participate in the Discussion Forum](#)

Become member

Apply for membership today:

- [Membership application for](#)

The history of establishment of IDGF

EDGeS

- DG<->SG integration:
 - gLite → BOINC, XtremWeb
 - BOINC, XtremWeb → gLite
- Compute intensive applications

2008 - 2010

further developed by

EDGI

- ARC, Unicore, Clouds
- QoS with Clouds
- Data intensive apps
- SG->DG direction support

supported by

DEGISCO

- Disseminates and supports the use of EDGeS results world-wide
- Green IT aspects

2010 - 2012

Joint establishment of IDGF



Goals of these EU DG projects and IDGF

To enable new and mass usage scenarios for DG systems

- Extend service grids with volunteer and institutional desktop grids (EDGeS, EDGI)
- Extend DGs with cloud resources on-demand
- Extend desktop grids with service grids (EDGeS, DEGISCO)
- Enable the flexible use of a DG system by large user communities (portal access to BOINC and SZDG)

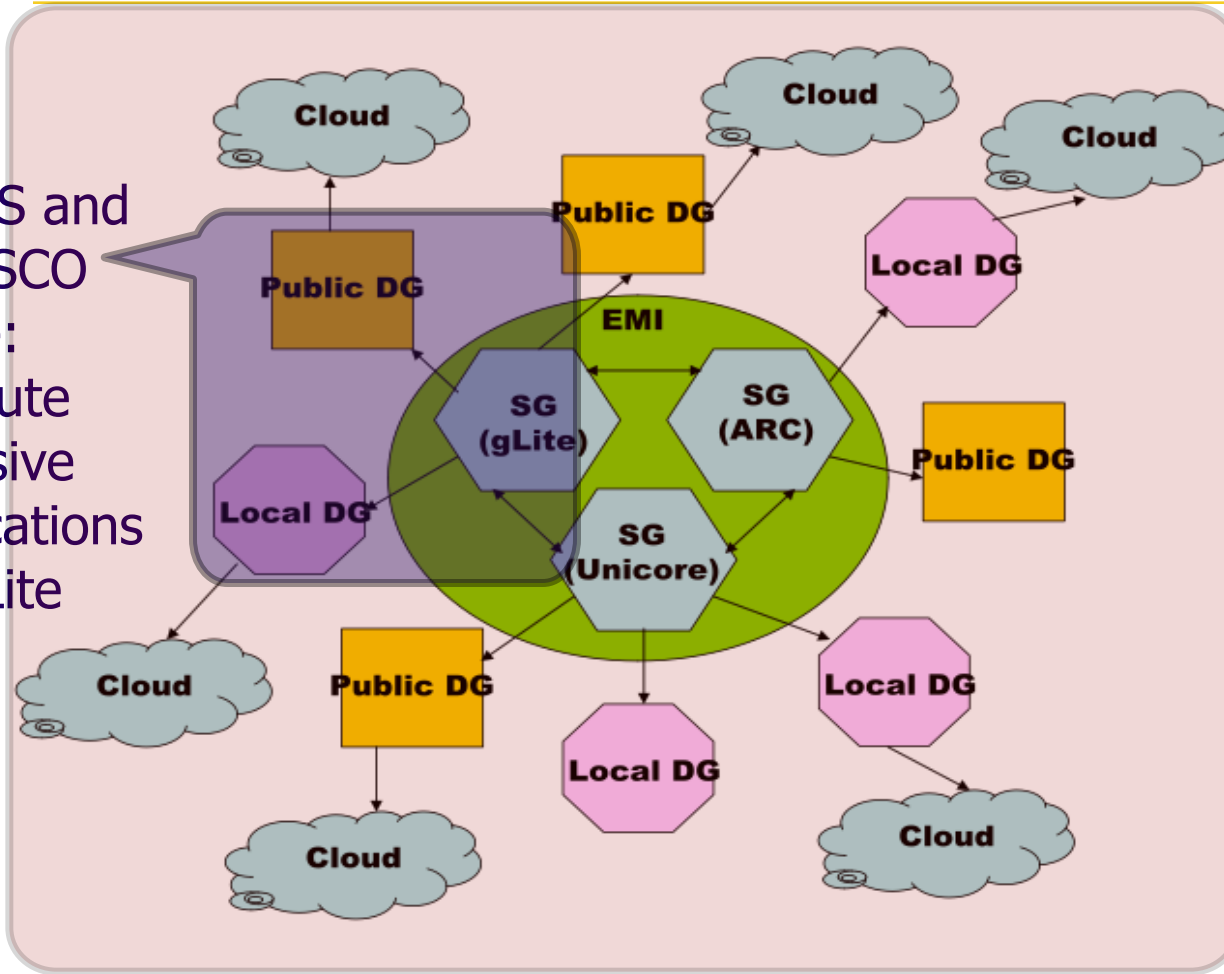


Extend service grids with volunteer and institutional desktop grids (EDGeS, EDGI)



Scope of EDGeS, DEGISCO and EDGI

EDGeS and DEGISCO scope: compute intensive applications for gLite

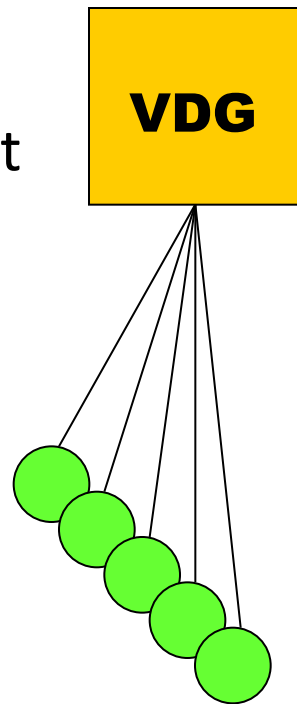


EDGI scope: both compute and data intensive applications for EMI/EGI (gLite, ARC, Unicore)

Extend Desktop Grids with Clouds for QoS

Typical current business model for volunteer desktop grids

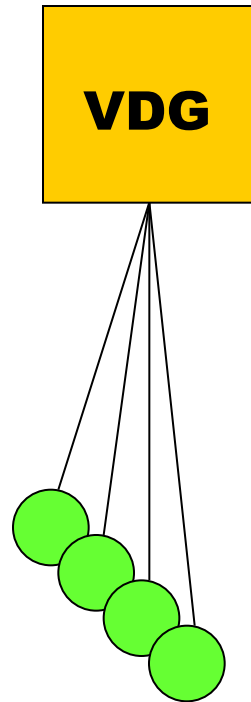
BOINC project runs 1 appl that runs for years



DG project administrator defines the input data to be processed by the appl

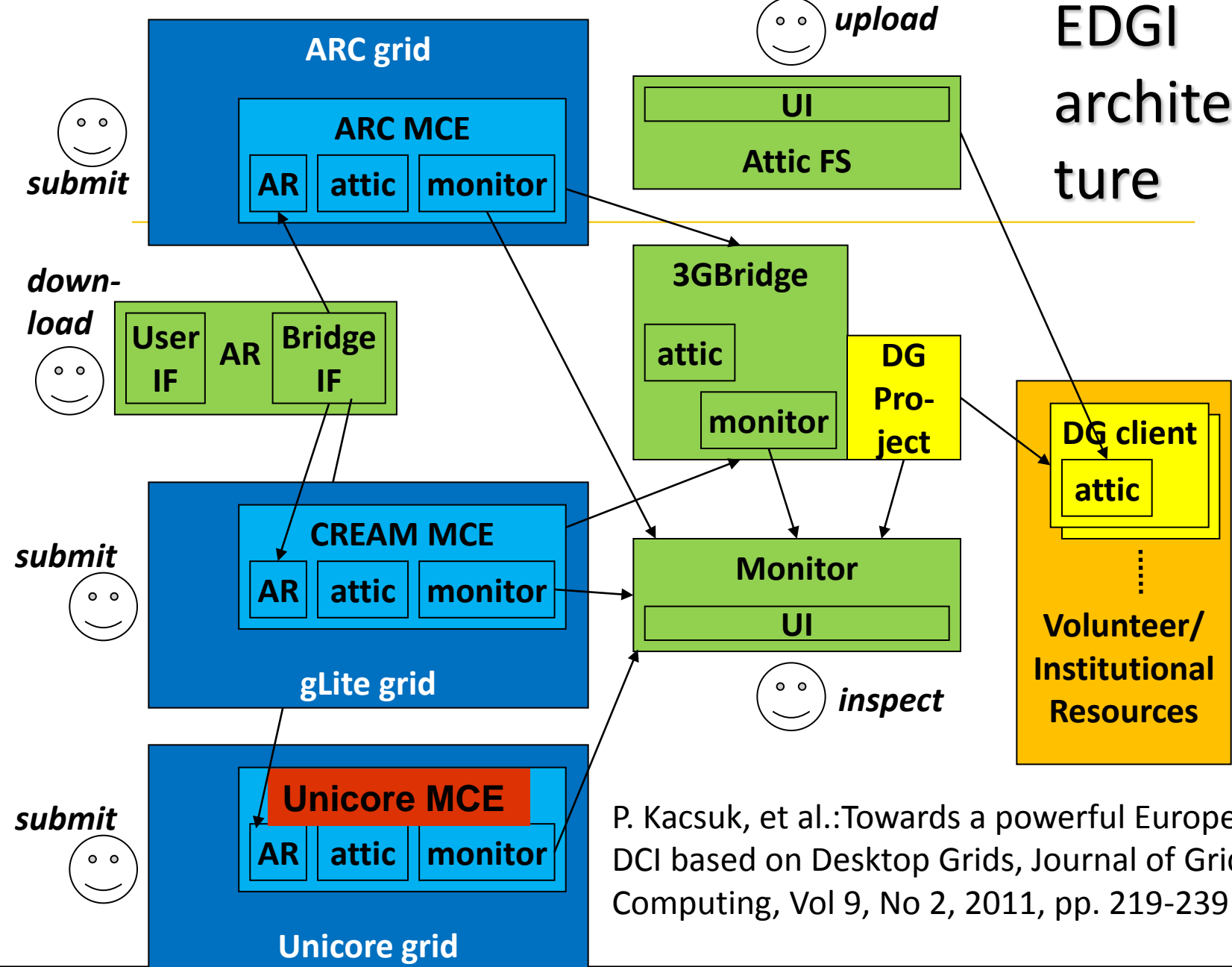
EDGI business model for extending SG VOs with desktop grids

- BOINC project runs several apps
- An appl runs if a user gives input data



- Many end-users can access the project via a **service grid VO UI**
- end-users define the input data to be processed by the apps

EDGI architecture



P. Kacsuk, et al.:Towards a powerful European DCI based on Desktop Grids, Journal of Grid Computing, Vol 9, No 2, 2011, pp. 219-239

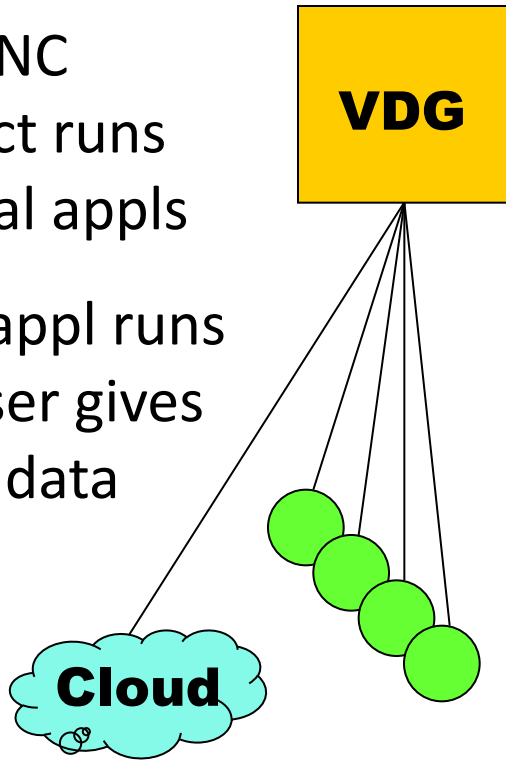
Extend DGs with cloud resources on-demand (EDGI)



EDGI business model for volunteer desktop grids

- BOINC project runs several apps

- An appl runs if a user gives input data



EDGI provides cloud resources for QoS

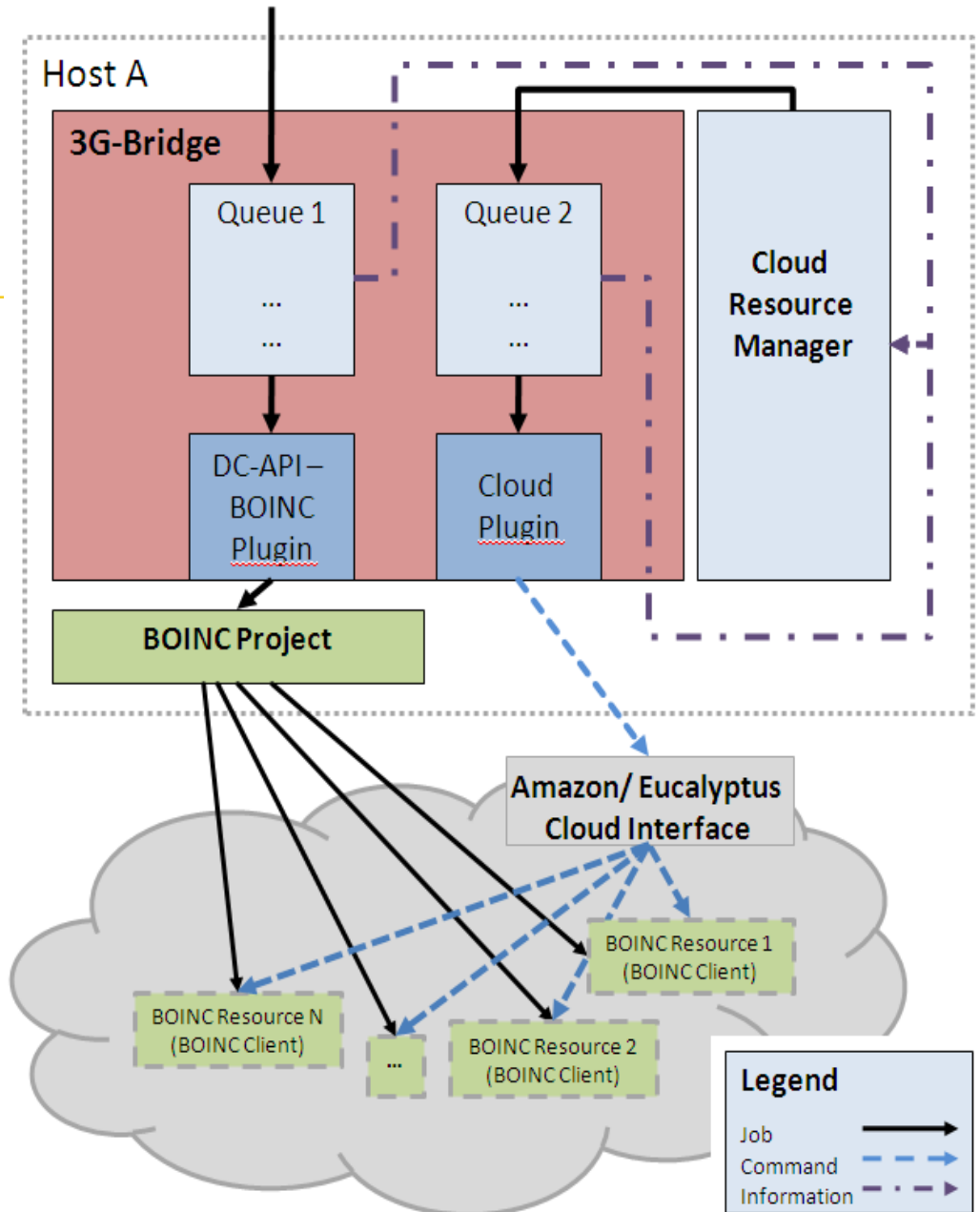
- Many end-users can access the project via **a service grid VO UI**

- end-users define the input data to be processed by the apps



Architecture of extending DGs with cloud resources on-demand

See details in:
 A. C. Marosi and P. Kacsuk,
 "Workers in the clouds,"
Euromicro PDP Workshop,
 pp. 519–526, 2011



Motivation for QoS

Desktop Grid

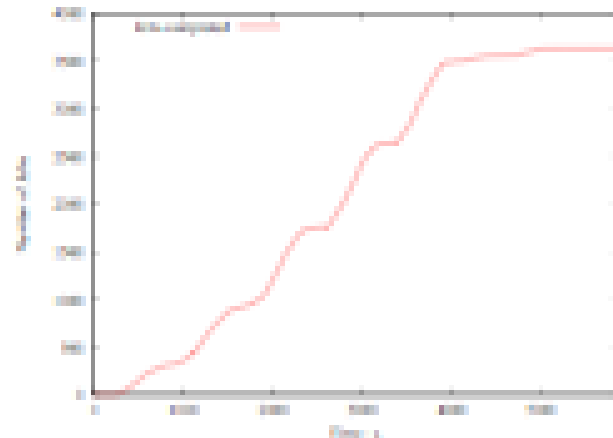
- Variable amount of resources, volatility, unpredictability, unannounced departure.

Low QoS compare to classical DCI

- **Tail Effect**
- We define QoS as a level of confidence in Bag of Task (BoT) execution :

Question: how do we provide QoS to users given the dynamism and volatility of the computing resources ?

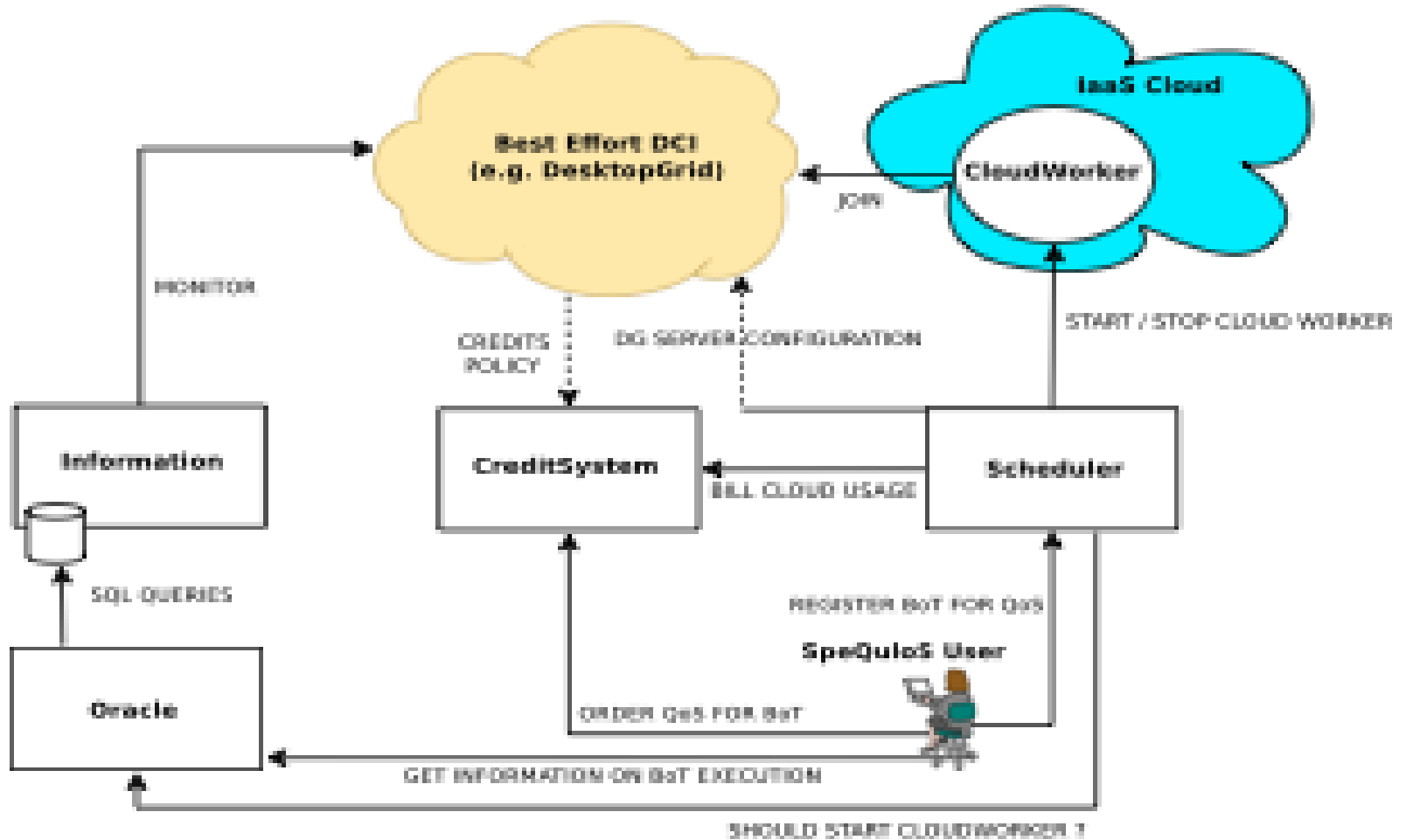
- Intrinsic approach : improve DG scheduler for QoS ability
- Extrinsic approach : provide additional dedicated computing resources

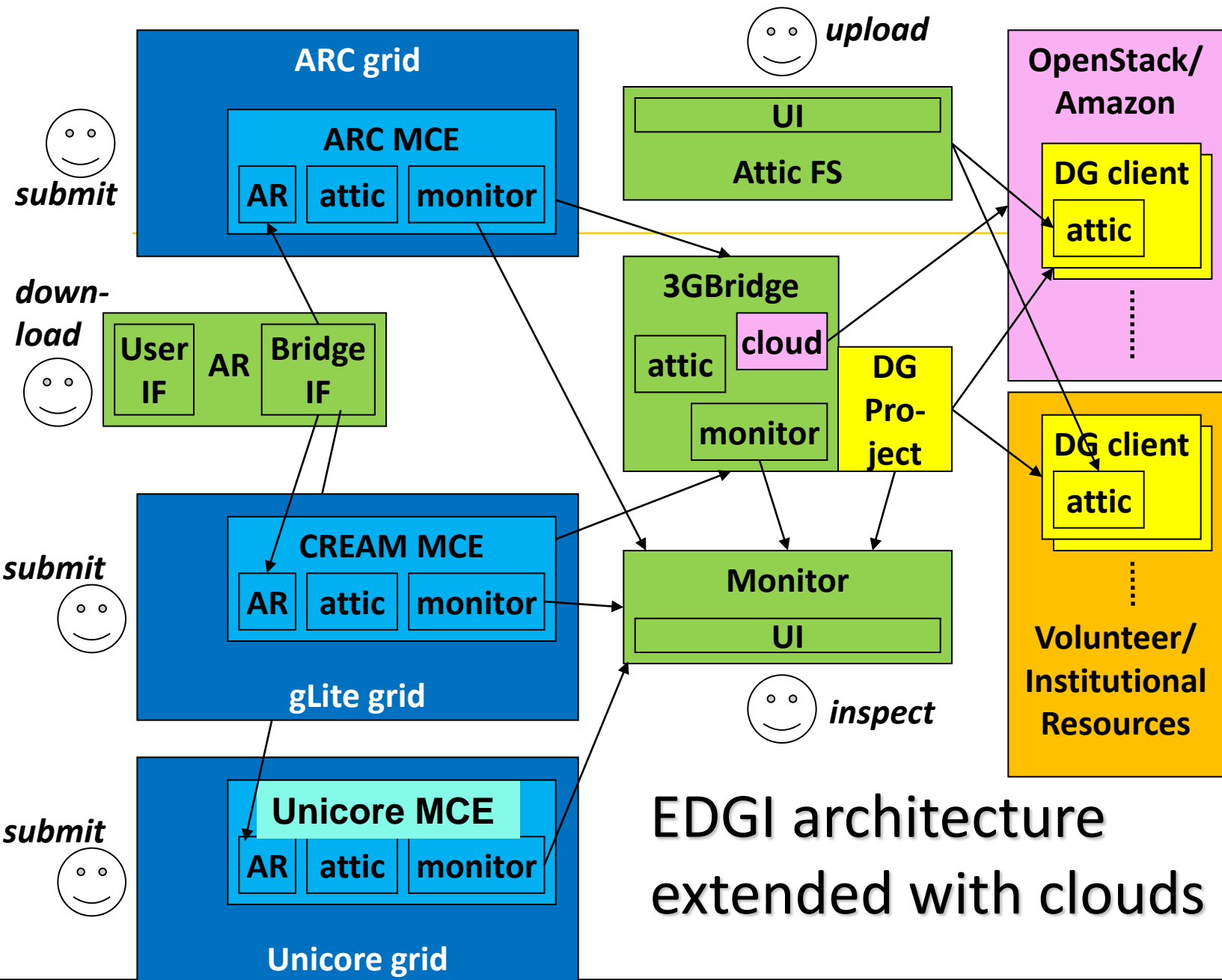


Solution:

- Providing cloud resources for the tail phase
- **SpeQuloS**

SpeQuloS: a middleware for QoS to Desktop Grids





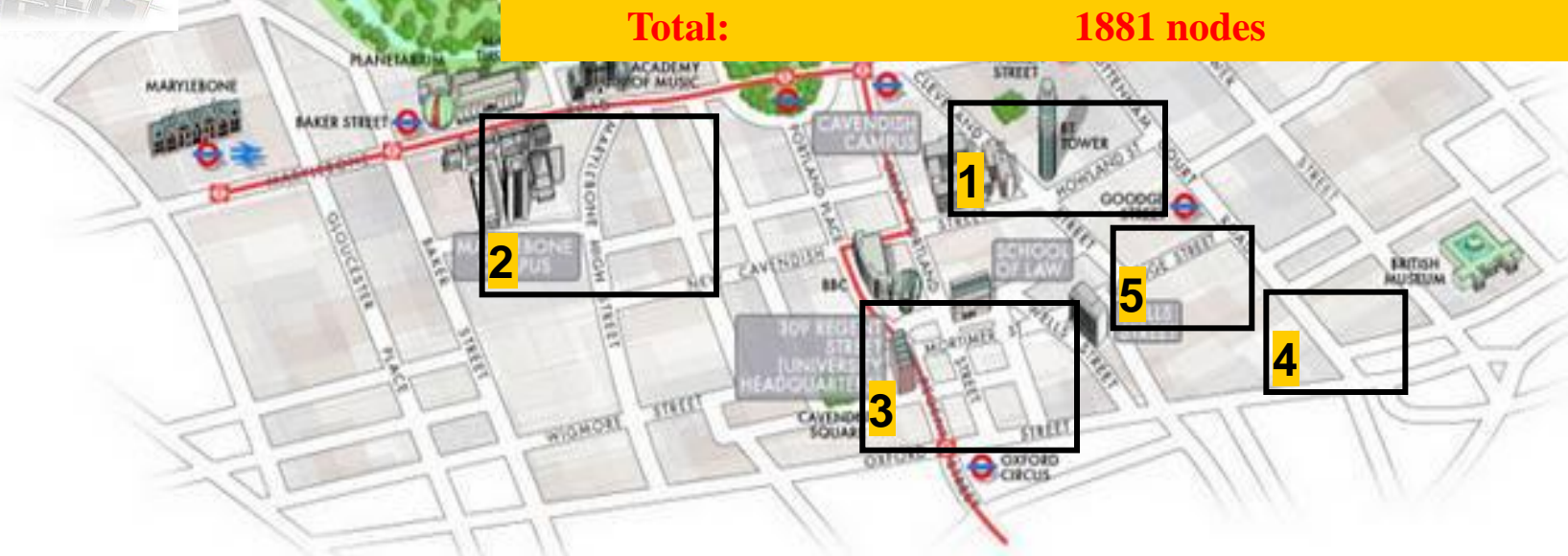
EDGI architecture extended with clouds

Current production solution of integrating BOINC DG with OpenStack based on 3G Bridge: Wmin local DG



1.	New Cavendish Street	576 nodes
2.	Marylebone Campus	559 nodes
3.	Regent Street	395 nodes
4.	Wells Street	31 nodes
5.	Little Tichfield Street	66 nodes
6.	Harrow Campus	254 nodes

Total: 1881 nodes



Attracting more participants for volunteer desktop grids

- EDGI introduces a new architecture where desktop grids (BOINC, XtremWeb) can be **extended with cloud resources** for QoS
- However, in order to get cloud resources the user needs credits
- In order to collect credit either the user or her organization should **provide resources for volunteer DGs belonging to IDGF**
- If you joined to IDGF those who would like to earn more credit for cloud resources will support your DG system

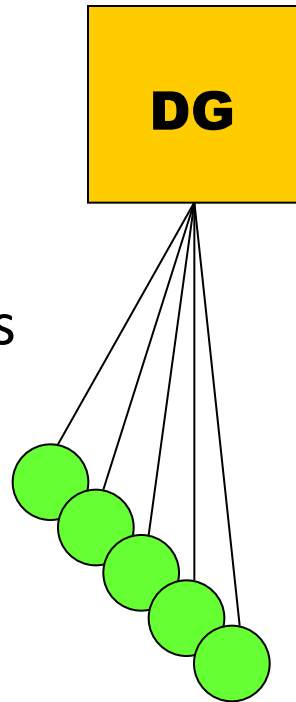
Enable the flexible use of a DG system by portal access (EDGeS, EDGI)



Enable the flexible use of a DG system

- BOINC project runs **several apps**

- An appl runs if a user gives input data



- We provide a **service** that can be used by many scientists via a web interface (e.g. WS-PGRADE portal)

- end-users define the input data to be processed by the apps (e.g. renderfarm.fi)

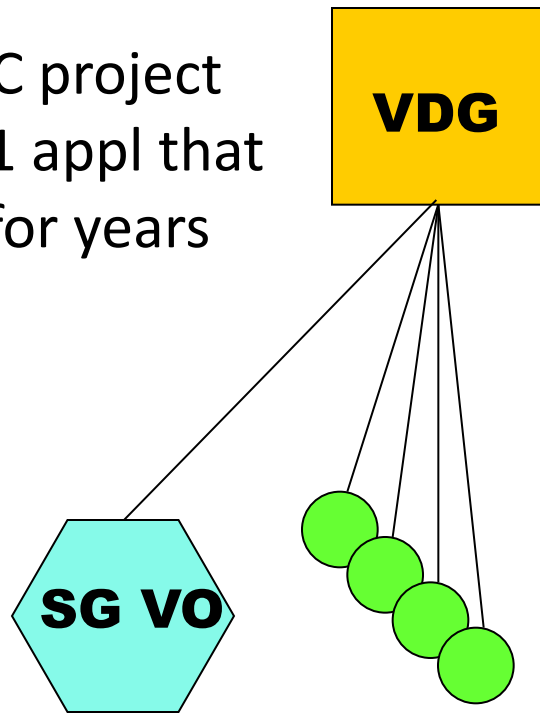


Extend desktop grids with service grids (EDGeS, DEGISCO)



Extending desktop grids with SG VO resources (DEGISCO business model)

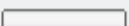
BOINC project runs 1 appl that runs for years



DG project administrator defines the input data to be processed by the appl

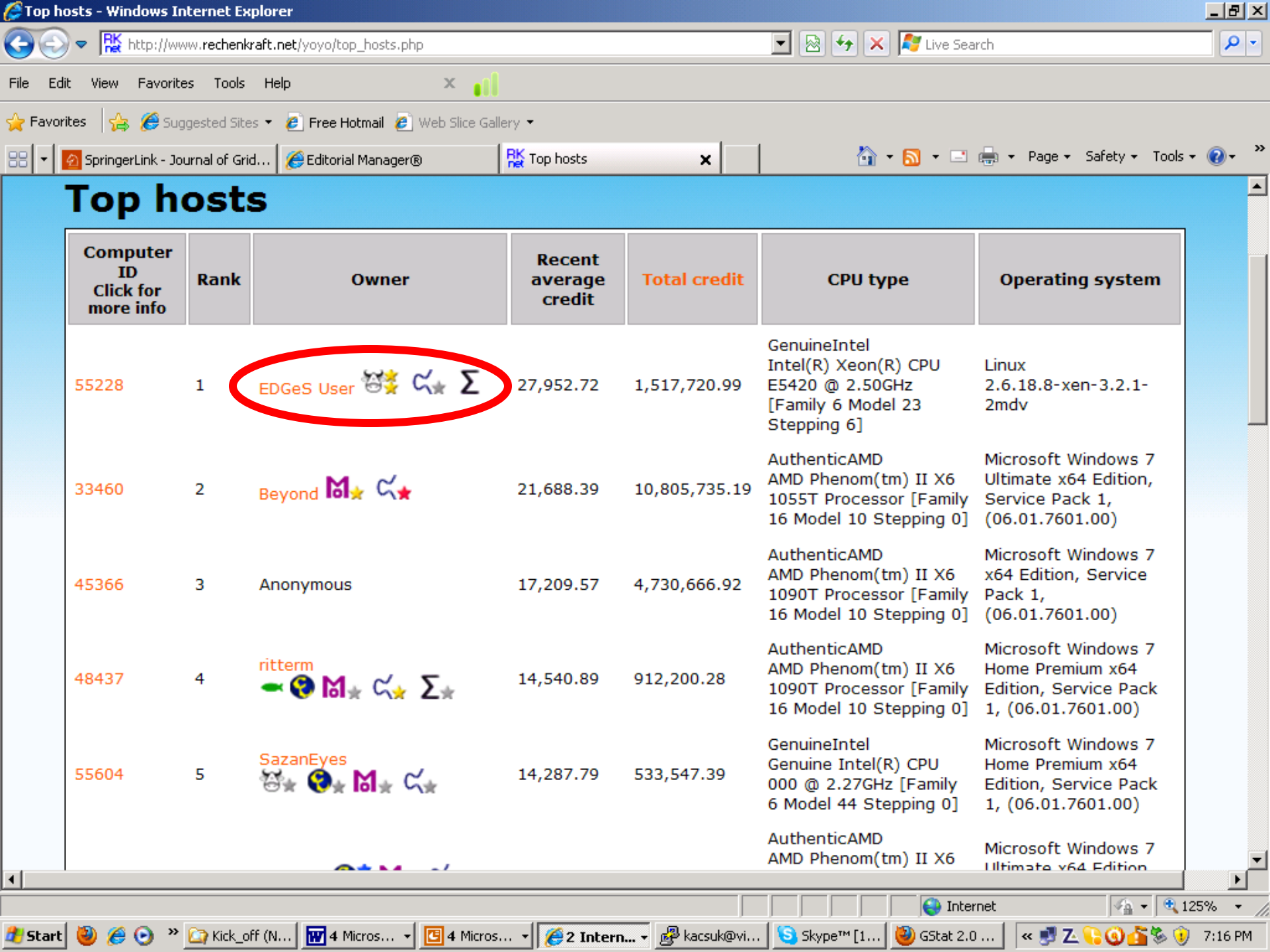
The SG VO maintained by DEGISCO (and later by IDGF) provides over 2000 computers to support a VDG

Desktop Grid VO Statistics




















Name ▲	CPUs			Online Storage Space (GB)		Grid Jobs		
	Physical ▼	Logical ▼	SI2000 ▼	TotalSize ▼	UsedSize ▼	Total ▼	Running ▼	Waiting ▼
AEGIS01-IPB-SCL	176	704	1,689,600	0	 0%	716	 101%	 0%
BIFI	64	384	523,392	492	 15%	16	 4%	 0%
GRIF	1,602	7,411	15,590,608	110,122	 40%	22,068	 168%	 43%
MY-UPM-BIRUNI-01	86	344	4,851,088	0	 0%	2	 0%	 100%
NCG-INGRID-PT	312	1,248	2,131,584	428	 0%	3,312	 200%	 24%
RU-ISA-CGTDC	4	16	0	315	 5%	25	 100%	 36%
SZTAKI	14	34	44,288	1,099	 6%	21	 44%	 28%
TW-eScience	2	8	21,520	136	 10%	30	 237%	 1481516%
UA-KNU	24	80	164,000	2,164	 20%	19	 0%	 100%
UFCG-LSD	8	1	1,323	986	 5%	0	 0%	 0%
UFRJ-IF	62	244	478,012	12,691	 94%	1,114	 1%	 79892%
Total	2,354	10,474	25,495,415	128,433	57,371	27,323	15,806	1,344,849

Benefit for new volunteer BOINC systems

- It takes several years until a new volunteer BOINC system can collect substantial number of resources
- IDGF will give access to the large set of SG VO resources that were created in the EDGeS and later in the DEGISCO project
- It contains over 2000 computers



Top hosts

Computer ID Click for more info	Rank	Owner	Recent average credit	Total credit	CPU type	Operating system
55228	1	EDGeS User    	27,952.72	1,517,720.99	GenuineIntel Intel(R) Xeon(R) CPU E5420 @ 2.50GHz [Family 6 Model 23 Stepping 6]	Linux 2.6.18.8-xen-3.2.1- 2mdv
33460	2	Beyond   	21,688.39	10,805,735.19	AuthenticAMD AMD Phenom(tm) II X6 1055T Processor [Family 16 Model 10 Stepping 0]	Microsoft Windows 7 Ultimate x64 Edition, Service Pack 1, (06.01.7601.00)
45366	3	Anonymous	17,209.57	4,730,666.92	AuthenticAMD AMD Phenom(tm) II X6 1090T Processor [Family 16 Model 10 Stepping 0]	Microsoft Windows 7 x64 Edition, Service Pack 1, (06.01.7601.00)
48437	4	ritterm      	14,540.89	912,200.28	AuthenticAMD AMD Phenom(tm) II X6 1090T Processor [Family 16 Model 10 Stepping 0]	Microsoft Windows 7 Home Premium x64 Edition, Service Pack 1, (06.01.7601.00)
55604	5	SazanEyes      	14,287.79	533,547.39	GenuineIntel Genuine Intel(R) CPU 000 @ 2.27GHz [Family 6 Model 44 Stepping 0]	Microsoft Windows 7 Home Premium x64 Edition, Service Pack 1, (06.01.7601.00)
					AuthenticAMD AMD Phenom(tm) II X6	Microsoft Windows 7 Ultimate x64 Edition

Examples of volunteer BOINC systems supported by the DEGISCO business model

- SLinCA@home (Ukraina)
- Yoyo@home (Germany)
- IberCivis (Spain and Portugal)
- CAS@home (China)
- Optima@home (Russia)
- Poem@home (Germany)
- Univ. of Westminster Campus Grid (UK)



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Globe adapted from
<http://upload.wikimedia.org/wikipedia/commons/f/fa/Globe.svg>



Get trained

Next IDGF training sessions and tutorials

- [Tutorials & workshops](#)

IDGF Desktop Grid training programme

- [IDGF training course overview](#)

Other training opportunities



Find documentation

Introductory documentation

- [Road map: Desktop Grids for eScience](#)

Technical documentation

- [Technical Wiki](#) (for IDGF members only)
- [Download section](#) (slides, documents)

Connect

You can connect your computer or infrastructure to (other) Desktop Grids or eScience infrastructures. Looking to run applications? Could be the one you want to use is already ported and certified.

Infrastructures

- [Infrastructures](#)

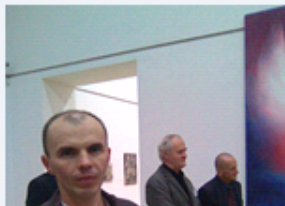
Available ported application

- [Applications](#) ported and available

Get certified

IDGF is working on a certification service for:

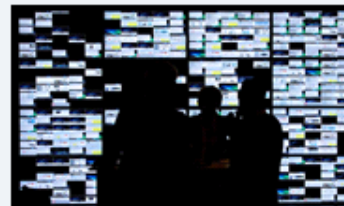
- Consultants
- Trainers
- Applications



Find experts

Chapters and working groups

- Expert groups
- Regional chapters: European Chapter.



Participate

Participate in the discussions:

- [Forum & message boards](#)

Please note that some parts of the message boards are only open to



Benefit for technology and application developer organizations of the European Chapter

- IDGF will investigate the possibility of participating in FP7 and FP8 EU projects
- If this is possible, to take IDGF as partner in EU projects will be attractive since IDGF will represent a large community (see the HealthGrid experience)
- Then the work allocated for IDGF in these projects would be distributed among the member organizations of the European Chapter



Conclusions

- Joining IDGF is worth for both SG and DG community members
- DG community members can extend their DG with SG resources
- SG community members can extend their SG VO with DG resources
- Both communities can get application porting support
- IDGF can significantly impact the community and can attract additional financial resources



IDGF

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**[http://
desktopgridfederation.eu](http://desktopgridfederation.eu)**



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wikipedia/commons/f/fa/
Globe.svg](http://upload.wikimedia.org/wikipedia/commons/f/fa/Globe.svg)