WP1: Policy, Impact and Sustainability

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WP1 Leader, QMUL

www.e-sciencetalk.org

WP1 Objectives

- Produce reports targeting policy makers in government and business
- Expand the audience and distribution lists for reports to regions outside Europe
- Assess the impact of e-ScienceTalk's products and formulate a sustainability plan
- Identify, attend disseminate the outcomes of meetings in order to influence scientists, funders, industry

WP1 Input

3 Beneficiaries • 46 PMs • 1.6 FTEs

Participant	Name	Effort /PM
2	**QMUL**	**28**
3	APO	5
5	CERN	13

1.1 Production and distribution of e-science policy articles and reports
(QMUL and APO)

1.2 Impact and sustainability
(QMUL with CERN, APO, Imperial)

1.3 Events attendance and media impact event organisation
(QMUL with CERN and APO)

Contributions

IMPACT=REACH+SIGNIFICANCE

1.1 e-ScienceBriefings

- Target policy makers in government and business
- Provide overview of relevant projects
- Leaders in the field
- Read in about 10 minutes;

  provide pointers for more indepth coverage

4 issues in Y2:

Desktop Grids
Research Networks
Visualisations
Open Data, Open Science

September 2012 – 23

e-ScienceBriefings

Talking about e-science

Knowledge Transfer

In 1991, Tim Berners-Lee, a computer scientist working at CERN, gave us the World-Wide Web. This tool, designed to make navigating information easy, is perhaps the most famous example of technology transfer to come out of e-science. It has revolutionised how we communicate; the global economy; even how we live our lives. Its pervasiveness in society was even celebrated in the London 2012 Olympic Games opening ceremony.

The tremendous computational requirements of experiments at CERN tie the foundation of the Web to what has become known as e-science, but e-science is far from a being one-trick pony. It's not just CERN and the web. From the developments in supercomputing in the 1980s, from which multiple processor cores have led to the advanced consumer electronics of today; to advances in information storage for huge experiments, which have help formulate 'the Cloud', practically the engine of the Web 2.0 economy – e-science impacts many areas of industry and commerce. Bioinformatics, a field largely made possible by the technological advances in e-science, has revolutionised R&D in the pharmaceutical industry. Still other advances impact on earthquake prediction and oil exploration. Computer games, now a multibillion-dollar industry, also make use of the technologies and talent of the e-science world, just as games technologies feed back into e-science. E-Science has never existed in isolation from the rest of human endeavour, and in the global marketplace this means that technology and ideas continue to be transferred out of and into e-science.

Supercomputer in the palm of your hand

Seymour Cray had a virtual monopoly on supercomputers for two decades, with his eponymous series of machines famed for their number-crunching prowess. His mantra, 'anyone can build a fast processor, the trick is to build a fast system', coined at a time when processing power was expensive, had held true for two decades. Eventually, his designs were superseded by a paradigm shift in computer architecture: multi-processor machines, which started being built in the 1980s. At the time, whether these clusters of processors counted as single supercomputers was debated, partly because the mechanics of getting the processors to work together had not been fully worked out.

The message passing interface (MPI) standard, introduced in the early 1990s, allows processors to effectively 'talk to each other' and distribute computational load. The first implementation was worked on, among others, by Tony Hey, later head of the UK e-Science programme. It has allowed software engineers to develop the concept by introducing bridging tools to make use of multiple processors, including commercial solutions such as Microsoft Compute cluster and e-infrastructure middleware such as gLite.

Chip manufacturers such as Intel, IBM and ARM have been switching to 'multicore' for several years, as heat restrictions have meant that cramming more transistors onto a die, or increasing the number of cycles per second, simply wouldn't work. More recently, system-on-chip (SoC) has meant that mobile technologies such as smart phones and tablets are virtual 'supercomputers in the hand', allowing such devices to run high-powered

With (2)–APO

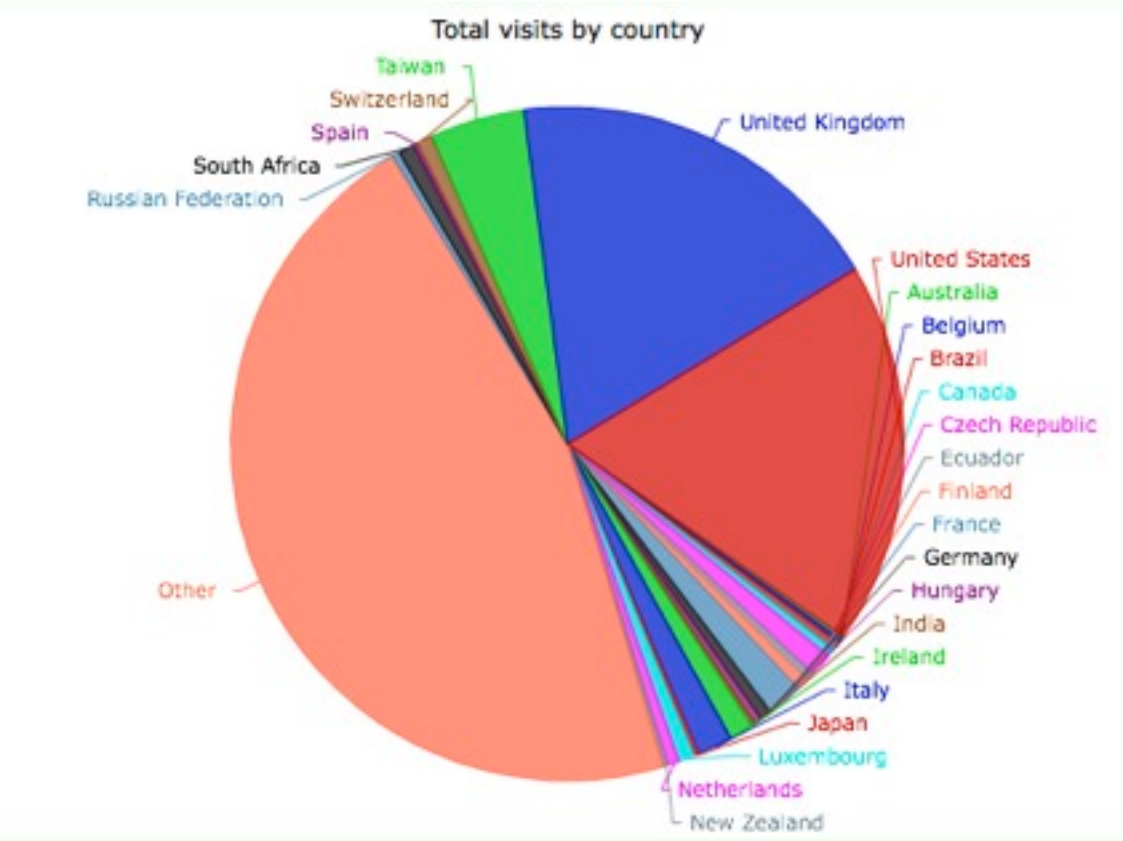
Reach

How large is the briefings audience?

- Email subscribers: 126
- Total number of downloads 7200 times.
- AddThis shares (1 like, 26 tweets, 10 Shares, 3 Google+)
- v.gd link shortening ~550 views of e-ScienceBriefings

1.1 e-ScienceBriefings

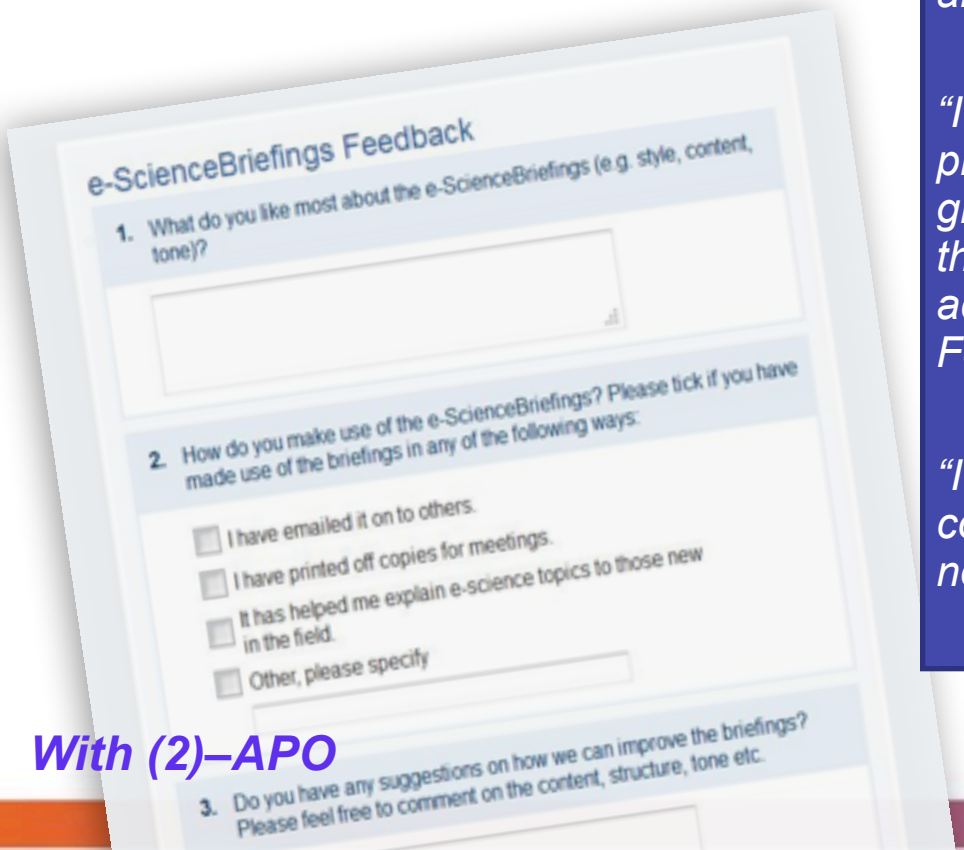
Reach



1.1 e-ScienceBriefings

Significance

What do people use e-ScienceBriefings for?


e-ScienceBriefings Feedback

1. What do you like most about the e-ScienceBriefings (e.g. style, content, tone)?

2. How do you make use of the e-ScienceBriefings? Please tick if you have made use of the briefings in any of the following ways:

- I have emailed it on to others.
- I have printed off copies for meetings.
- It has helped me explain e-science topics to those new in the field.
- Other, please specify

3. Do you have any suggestions on how we can improve the briefings? Please feel free to comment on the content, structure, tone etc.

Helps explain e-science topics to those new to the field.

"I've been told that on a national level these briefings are used as material to show others as a "read this and understand or hey look at this and what they are doing or what can be done."

"It is a beautiful publication and I love that it is printed. It is so important because it is a very graphical snapshot of what's important today for the hands of legislators and policymakers. I actually stole one to show the National Science Foundation."

"I thought it was quite accessible in that the content was scientific and technical enough, but not to expert level."

With (2)–APO

Sustainability

- People are aware of the Briefings at meetings
- Distribution of future issues, and especially of yearly reports, should target policymakers more directly...send to POST, Office for the Commissioner for Digital Agenda

- ***How sustainable are the briefings?***

  - In order to develop more briefings, time and effort would have to be funded (3 weeks for content curation)
  - Sponsor would need to have over-arching aims e.g. e-IRG

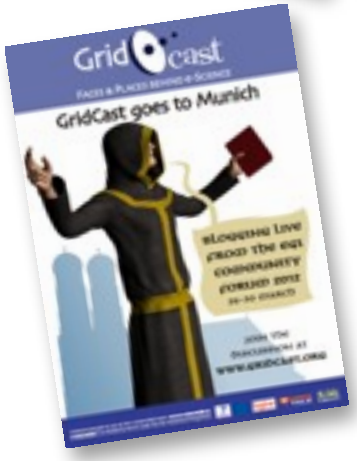
1.3 Gridcast & Social Media

With (2)–APO

1.3 Gridcast & Social Media

Technical Forum 2011
eChallenges 2011
Citizen Cyberscience
ISGC12...

EGI-CF12
ERF
e-IRG
GISELA-CHAIN



With (2)–APO

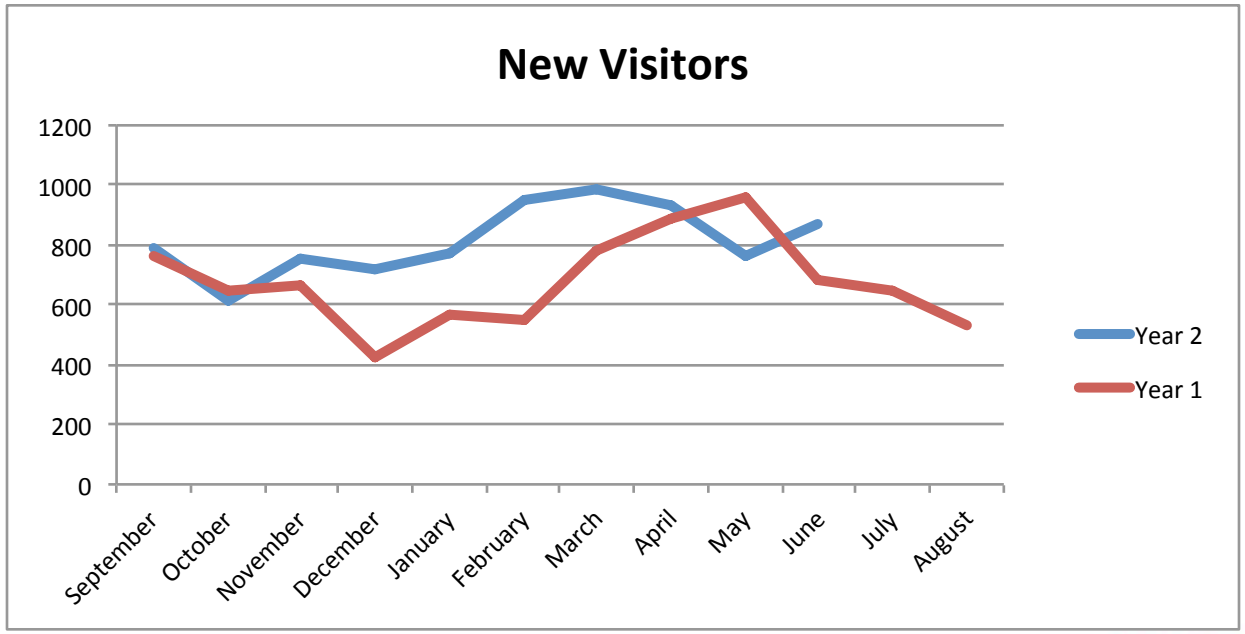
1.3 Gridcast & Social Media

Reach

>6000

With (2)–APO

Reach


New Visitors
1200
1000
800
600
400
200
0
September
October
November
December
January
February
March
April
May
June
July
August
Year 2
Year 1

1.3 Gridcast & Social Media

Significance


HPC In the Cloud

Dedicated to covering h
in science, industr

Select Language | Translation Disclaimer | Subscribe | Sign In

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datanami

February 28, 2012

Cloudscape IV Spurs Discussion

Digital Manufacturing report

HPC wire

Cloudscape IV, under the direction of the SIENA Consortium, took place Feb. 23-34, at the European Commission in Brussels. The event aims to drive advances in interoperability and cloud computing standards as captured by the SIENA Roadmap, which seeks to "define scenarios, identify trends, investigate the innovation and impact sparked by cloud and grid computing, and deliver insight into how standards and the policy framework is defining and shaping current and future development and deployment in Europe and globally."

SIENA, the Standards and Interoperability for eInfrastructure Implementation Initiative (2010-2012), is an EU-funded group whose objectives are complementary to the role of the US National Institute of Standards and Technology (NIST) in providing guidance on cloud standards and technology.

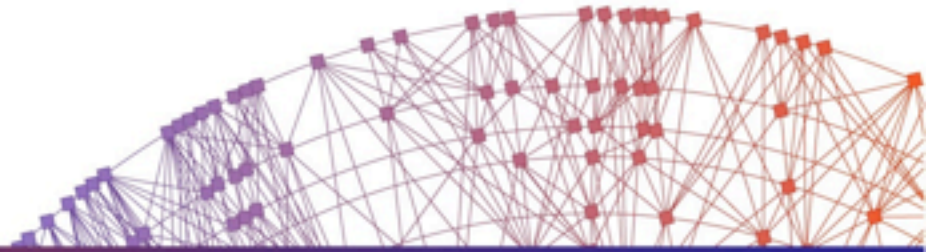
Over at GridCast, Juelich Supercomputing Centre's Morris Riedel, as EMI Strategic Director & EUDAT Data Replication Task Force Leader, has written about some of the interesting topics that came to light at that CloudScape IV event. Two of these discussions center on HPC in

With (2)–APO

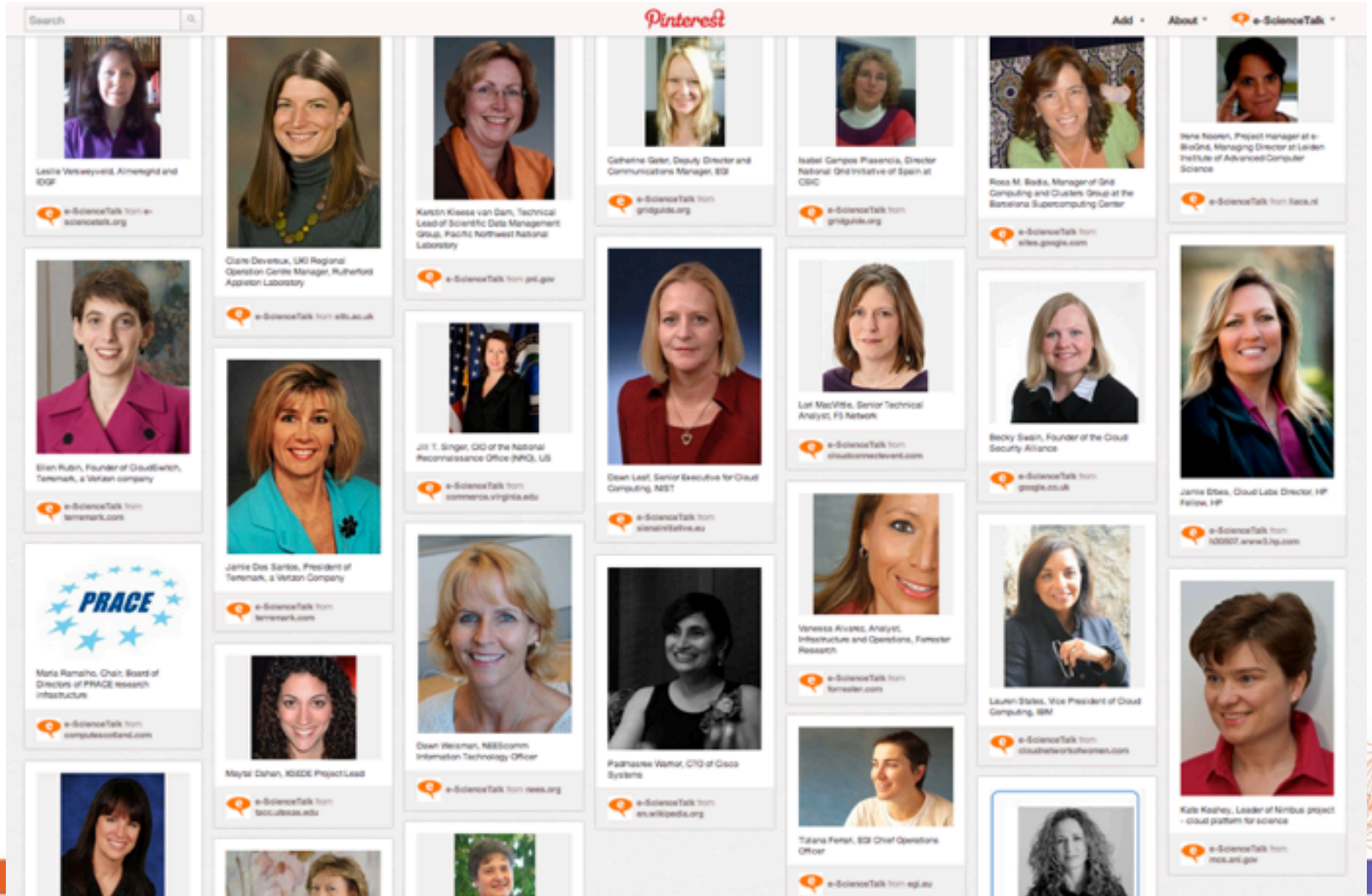
Sustainability

- ***How sustainable is the site?***
  - Highly sustainable as dependent on volunteers (100 regular contributors).
  - Coordinator is also important.
  - Cultivate ‘Star Bloggers’ and build relationships with e-science bloggers

- ***What is the USP?***
  - Video production is a strong driver of success
  - Partners interested in using e-ScienceTalk as a visiting media team



1.3 Gridcast & Social Media



1.3 Gridcast & Social Media

isgtw international science grid this week

Advanced Search

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The known and unknown pioneers of modern computing

Like 13 Share 4

FEATURE | JUNE 20, 2012 | BY STEFAN JANUSZ

June 22 and 23 this year mark the birthdays of two pioneers of computing: Konrad Zuse and Alan Turing. The Turing centenary is an occasion to remember the man who laid the groundwork for many theories of computation, and whose work at Bletchley Park in the UK was crucial in the allies winning the war. Less well known is Zuse, but it was in fact this man, a civil engineer working independently in a Germany under Nazi rule, who built the world's first electrically driven, programmable computer that counted in binary.

The theory came first

Alan Mathison Turing was born in Maida Vale, London, 100 years ago, on 23 June 1912. Turing is often referred to as the Father of Modern Computing. He was a mathematician, with a talent for providing neat, conceptually simple solutions to overarching problems in theories of logic. He was specifically interested in tackling the problem of being able to decide—from a logical perspective—whether mathematical problems were computable or not.

isgtw iSGTW international science grid this week

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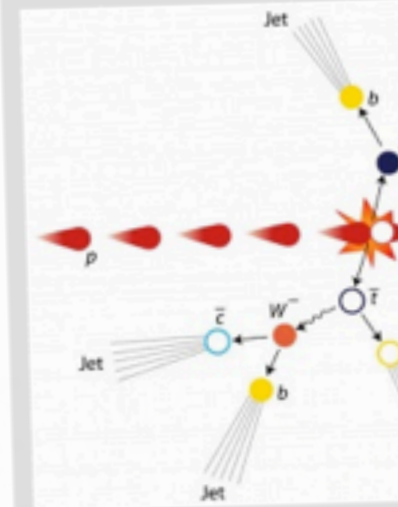
Hunting for giants

Like 5 Share

FEATURE | JULY 4, 2012 | BY STEFAN JANUSZ

It's thirty-five times heavier than other quarks, and as heavy as the nucleus of an atom of gold. The top quark is the elephant-in-the-room of the standard model. Its lifetime in particle detectors is so short that we can only infer its existence by sifting through vast quantities of data produced by smashing together subatomic particles. "Without distributed computing, hunting for the top quark would be impossible," said Marcel Vreeswijk, associate professor of subatomic physics at the University of Amsterdam, who works on the ATLAS experiment at the Large Hadron Collider (LHC) at CERN, in Switzerland.

ATLAS produces new data every 25 nanoseconds (billionths of a second), helping scientists home in on an accurate mass for the top quark. To deal with this data, some of which is random 'noise', they have to filter out signals at the



A diagram showing how high-energy quark (t) and its antimatter equivale Image courtesy Wikimedia Commons

With (2), (4)–APO & CERN

1.3 Gridcast & Social Media

CERN, guardianscience, sciencemuseum, ChemistryWorld, seedmag, IdeasGate, psael, TheComedyStore, mediamuseum, astroparticle, symmetrymag, cheltfestivals, junespringtech, ENGINEERINGcom, womenintech, cloudbook, ALICEexperiment, cloud_connect, Michael_GR, QMUL, endthedisease, DigitalAgendaEU, FMWF, momentofscience, USLHC, particlenews, milenio_ciencia, NancyProctor, DoTryThisAtHome, cloudtweaks, EPRINews, HPCwire, CloudWSeries, dmascia, BritishSciFest, EnergeticFutura, illuminantceo, geopense, AmateurPhilosop, ChemHeritage, dubscience, ristyBurne, IN2P3_CNRS, Leigh_Phillips, swissnexSF, w, datanami, timClicks, benstill, LBNLcs, busuab, _Chemis, Team, DrQz, hartem, ScalableComp, GEANTnev, M, CyberSciCentre, geekeconomist, mariocamp, ica_ICT, billyzero, SoftwareSaved, bigodines, Lab, yoyo_rkn, CloudyGrids, rohanmittal, planet_gridpp, eela_na3, GRDI2020, gravitazeroeu, eresearchnz, asa, nano86, auzzie22314, mit09, CARCELACHAVEZ,

1.2 Sustainability for e-ST

1.2 Sustainability for e-ST

eChallenges paper

e-ScienceTalk: Measuring the impact of online outreach for e-infrastructures

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Abstract: Over the last decade, the European Commission and governments have invested substantial funds in distributed computing infrastructures. e-ScienceTalk disseminates the success stories and impact of these e-infrastructures. Stories come from the flagship pan-European projects but also from a host of smaller and emerging projects. For e-ScienceTalk's first year, outputs and outcomes were recorded through a range of methods, including tracking output metrics and by monitoring online traffic. This information collectively provided evidence of the project's wide global reach. Generally, most of e-ScienceTalk's target metrics for the first 12 months have been met or exceeded. For the future, metrics will be added to measure impact and track website usage in a more representative way. Evaluation

1.2 Sustainability for e-ST

EUDAT 1st Conference

Place: Barcelona, Spain

Date: 22 October 2012 - 24 October 2012

The 1st EUDAT Conference will take place from 22-24 October 2012 in Barcelona, Spain.

This international event will bring together data infrastructure providers and practitioners from across the globe to discuss current data infrastructure challenges and solutions, with a focus on interoperability, cross-disciplinarity and cross-border collaboration.

Plenary and parallel sessions will be organized on 23 and 24 October around the following topics:

- Cross-Disciplinarity and Open Science
- Global Collaboration on Data Infrastructure

- Draft Programme
- Important Dates
- Training sessions
- Venue
- Registration & Accommodation
- Call for Posters

Impact of?

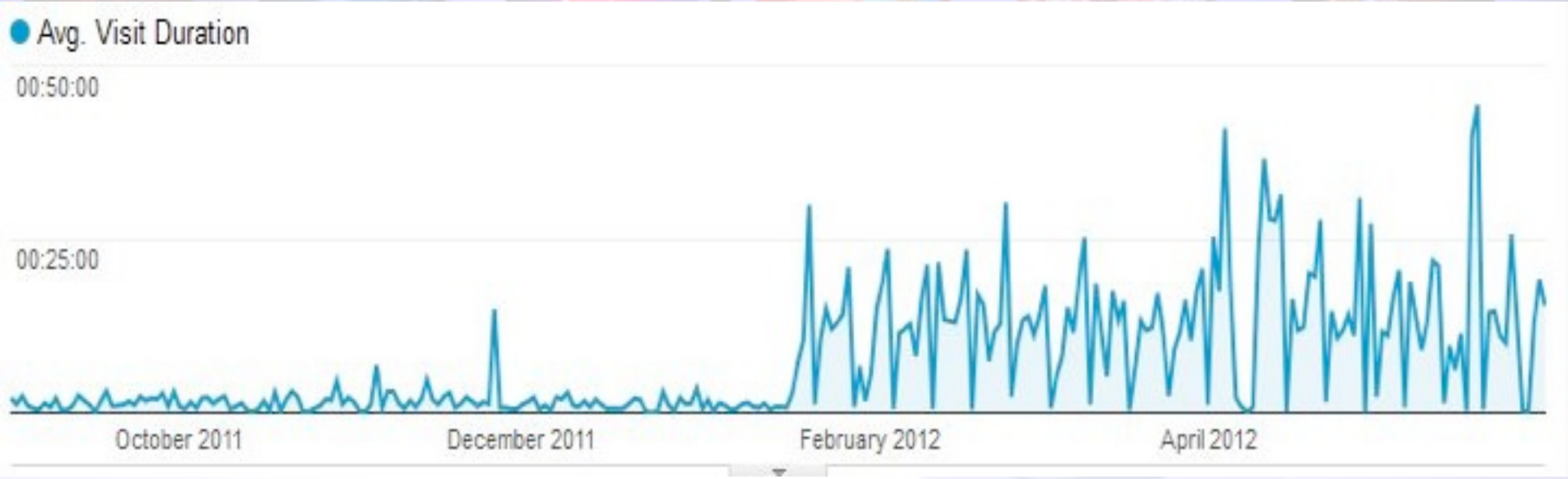
Impact

e-ScienceBriefings

With (2)–APO

Reach

~5000 backlinks



9 minutes

With (2)–APO

Significance

- **73%** responders said the website was useful/very useful
- 16/19 people found what they were looking for.

CloudLounge, Volunteer Garage, HPC Tower

With (2)–APO

Sustainability

- ***What is the main barrier to impact?***
  - Improve discovery via pro-active marketing of GridCafé and e-ScienceCity

- ***Have we demonstrated value?***
  - Success drivers/ attributes for potential funders (high quality content, Open Access/ShareAlike, cross-disciplinary appeal).
  - Next year: assess both usability and value of sites as an information resource e.g. measure change in knowledge pre- and post-test visit for sites.
  - Investigate Google AdSense to keep the site operational
  - Interest from partners in developing new sections

Sustainability:Y3 Marketing

e-science TALK

Teaching Pack

Teaching e-Science in the Classroom - A pack designed for educators

e-Science for everyone

e-Science Talk is an EU funded project specialising in disseminating e-Science topics to the general public. The aim of this teaching pack is to provide you with tools so that you can teach about e-Science within either your current lessons, or as an additional enrichment activity such as during a STEM club.

So what is e-Science?

e-Science is a science that relies heavily on computation. But why do we need it? Every day many disciplines produce vast amounts of data that need to be analysed and correctly managed. A good example of experiments that produce a lot of data are those at CERN. However, e-Science extends beyond just particle physics. It also includes earth sciences, social simulations, art (animation and rendering)and bio-informatics. e-science has contributed to bringing about the rise of affordable and fast data processing.

e-Science can be divided up into areas dealing with different aspects of e-scientific computation. These include:

- Cloud Computing
- Grid Computing
- Volunteer Computing
- High Performance Computing

How can I teach e-Science?

As a teacher finding resources for your students to use can sometimes be challenging. As a primary aid to teaching e-Science we have produced a memory stick containing the e-Science City website. It can also be reached via the following website:

www.e-sciencecity.org

e-Science City explains aspects of e-Science in a very user-friendly way. It was designed for teenagers, therefore the information on the website shouldn't need

The lesson

This lesson plan is divided into two 60 minute lessons.

Learning Objectives

All will be able to explain what e-Science is.
Most will be able to explain a single aspect of e-Science in more depth.
Some will be able to explain all aspects of e-Science in more depth.

Preparation

This lesson also requires either the use of a computing lab, or access to laptops. A projector with sound is also used for the starter and later towards the summary. The computing resources are used for the student's independent research.

Starter (5 Mins)

During this section of the lesson the teacher introduces the idea of e-Science.

Video (10 Mins)

Play the video explaining what e-Science is.This is around 8 mins and features the penguins from the Dreamworks film, Madagascar. The URL is below:

http://www.youtube.com/watch?v=TGSRvV9u32M&feature=fvsr

A search for "high

With (2)–APO

Reach

GridGuide

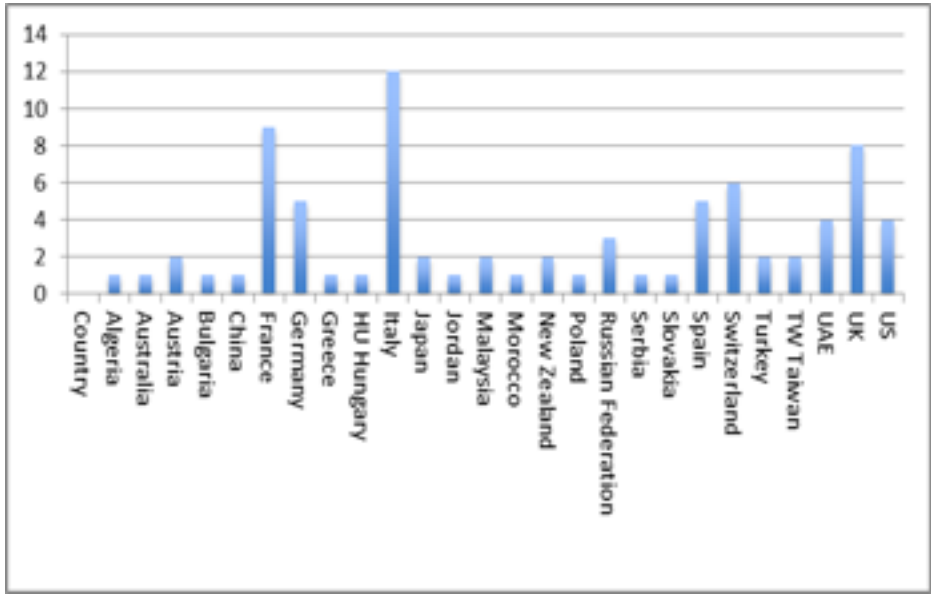
- Now 66 sites on GridGuide
- Visits are from Spain, France, UK, US and Switzerland.
- Top referrers are e-ScienceTalk websites

Real Time Monitor

- At 10 meetings with almost 12,000 attendees.
- Visitors from UK, the US, and France.
- Top five users are based in Italy, UK, Germany, France and Spain.

GridGuide & RTM Significance

- ***Who uses the Real Time Monitor?***
  - IP analysis of top 100 users
- ***What do people use it for?***
  - Outreach, educational and demonstration purposes over a wide geographical spread.



The RTM was "*something we've looked at and been impressed by*" (Science Museum, London)

  - All users (7) were positive/ and suggested lots of extra information they would like to add.

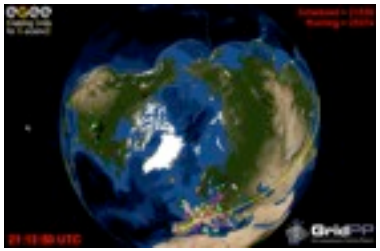
With (4)–IC

Sustainability

GridGuide

•Low response to our campaign to increase the content on existing guides.

•Investigate incorporating GridGuide into another e-ScienceTalk product.



RTM

•One of our most popular products.

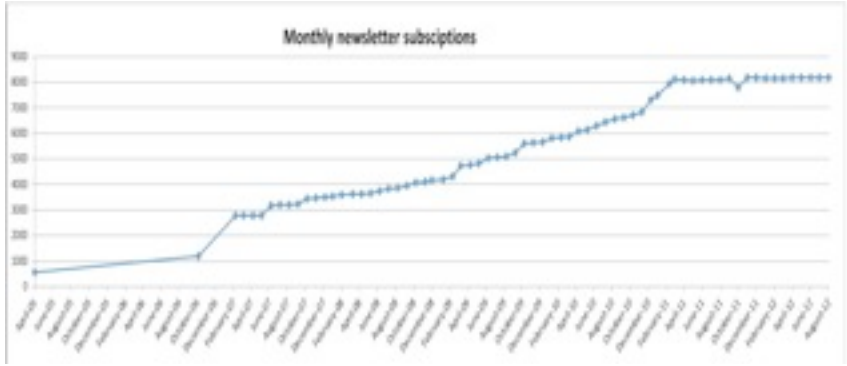
•Users are interested in developing the RTM.

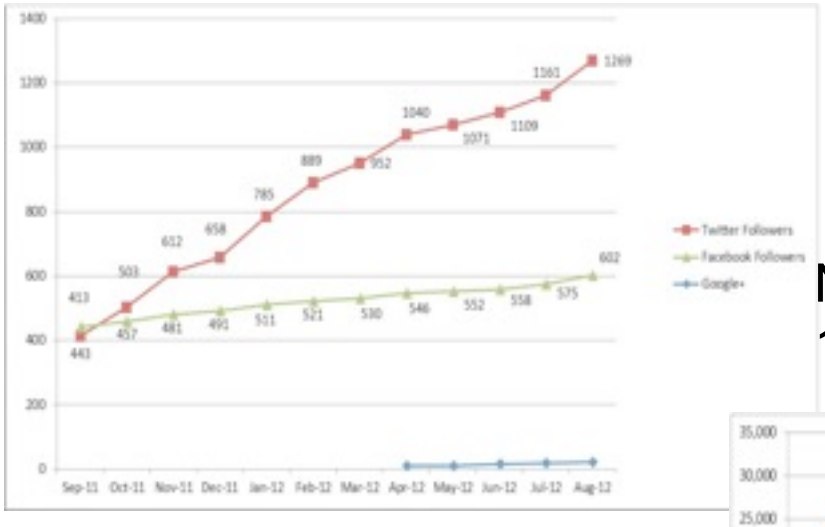
•RTM can not be maintained using best effort or volunteer effort.

With (4)–IC

iSGTW extending reach…

Number of subscribers (8,170)



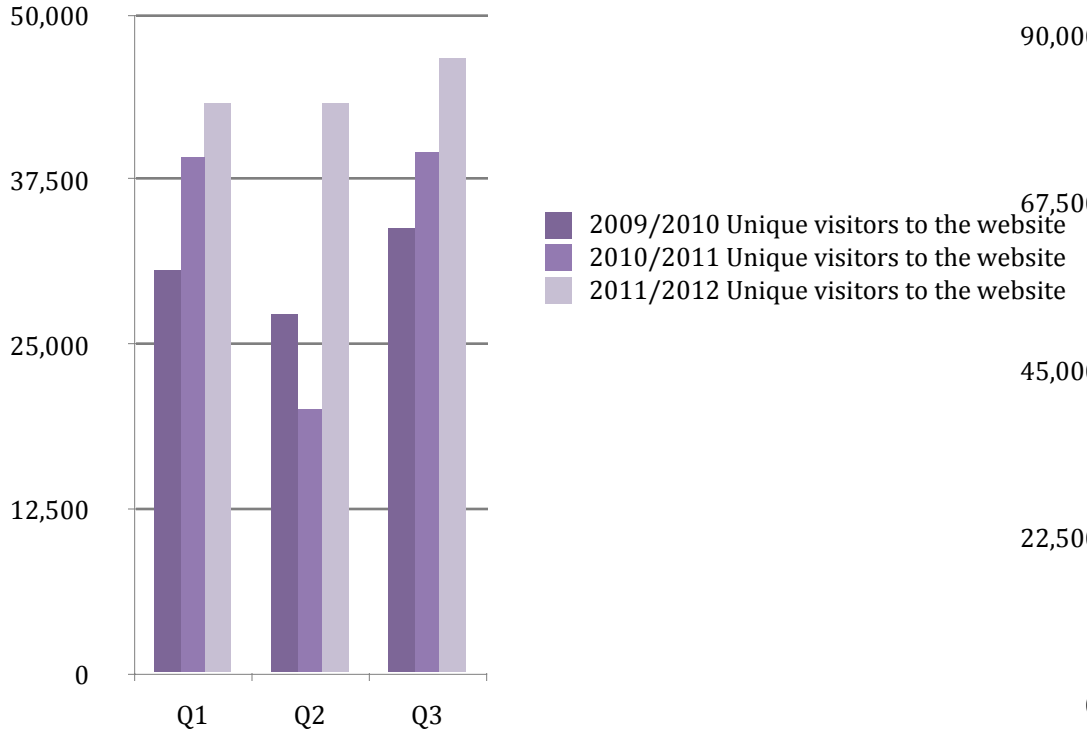


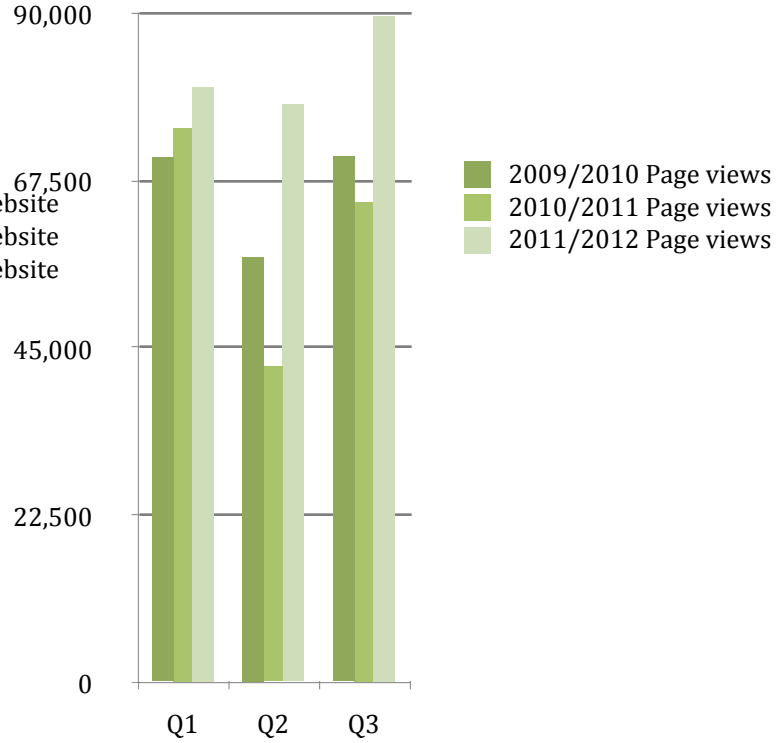
Number of followers (i.e. 634 Facebook + 1,291 Twitter + ~900 RSS)

Page views/unique visitors

(Google Analytics)

iSGTW reach…





- Greater % referrals from social media:
  - Facebook referrals have increased by 300% and Twitter referrals have increased thirteen-fold

iSGTWs wide appeal…

…is demonstrated by results from the Readership Survey.

- 3rd largest group was the media (@11%)

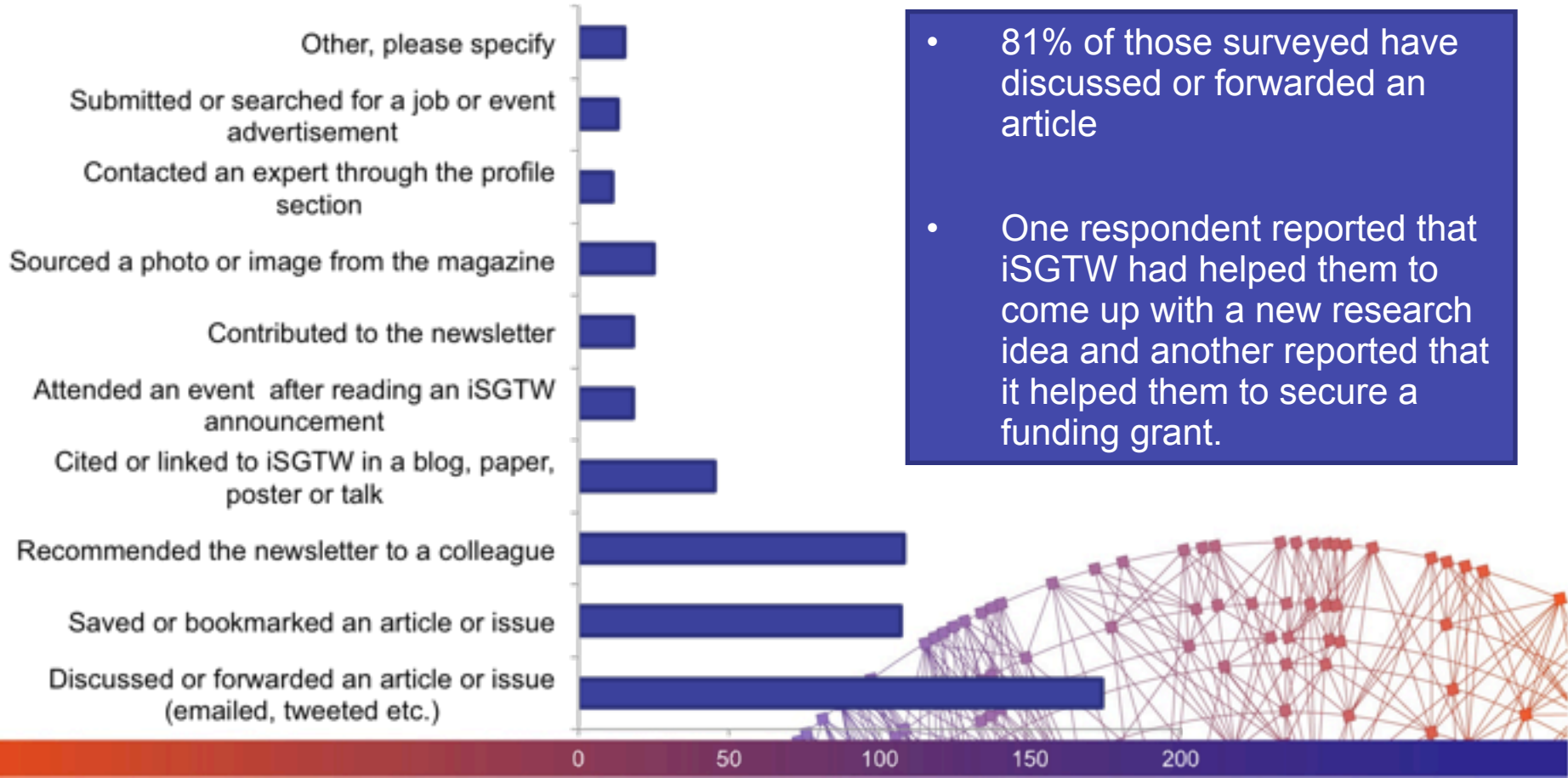
  – Twiangulate confirms our biggest followers are @CERN: 602,776 followers and @NatureNews: 380,751 followers).

- One quarter (26%) have no relationship to e-science but just have a general interest in computers.

- Growing percentage (26%) are female. Up from 15% in 2008.

1. iSGTW significance

Readership Survey*: What actions have people taken as a result of reading iSGTW?*



- 81% of those surveyed have discussed or forwarded an article
- One respondent reported that iSGTW had helped them to come up with a new research idea and another reported that it helped them to secure a funding grant.

2. iSGTW significance

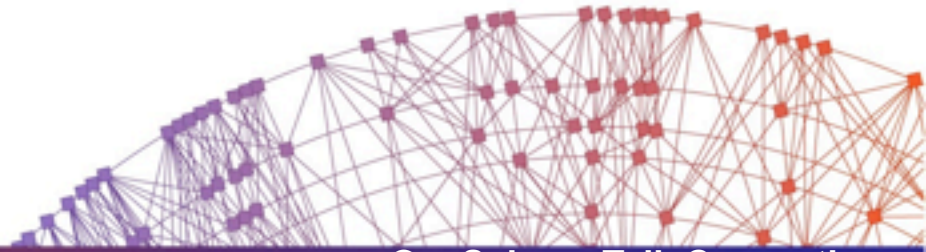
Readership Survey…

Are we providing assistance to the community in finding future partners /collaboration/helping with new ideas?

68% agreed: 'I use iSGTW to keep up-to-date with technical developments in all areas of e-science/cyber-infrastructure.'

Is iSGTW helping scientists keep informed of the latest technologies in e-science?

67% agreed: "I have found out about tools, services, resources, projects, initiatives, and/or potential collaborators of which I was previously unaware of."



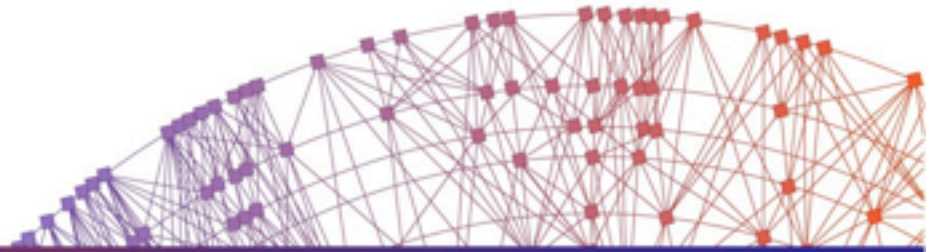
3. iSGTW significance

Is iSGTW influencing mainstream media to include content from e-science projects? **Google alerts, Googling iSGTW titles**

- Media pick-ups from HPC Wire, Cosmos Magazine, Wired and Symmetry.
- 1000 organisations also backlink to the iSGTW

Are people engaging with content? **Google Analytics/Website**

- 251 events (+1s, bookmarks, saves) and 148 conversations(reshares,comments)
- On average one in three articles receive a comment.



iSGTW sustainability

- ISGTW continues to **nurture a network of unfunded contributors** from a wide range of projects in all its contributing regions.
- One of unique selling points is our **independent voice** in support of all areas of science and e-science.
- Position iSGTW as the **preferred channel** for the research community and major e-infrastructures in Europe (e.g. ESFRI, PRACE etc.) and through media partnerships (**I**SC Cloud Conference 2011)
- Indiana University has secured NSF funds for an iSGTW US editor.