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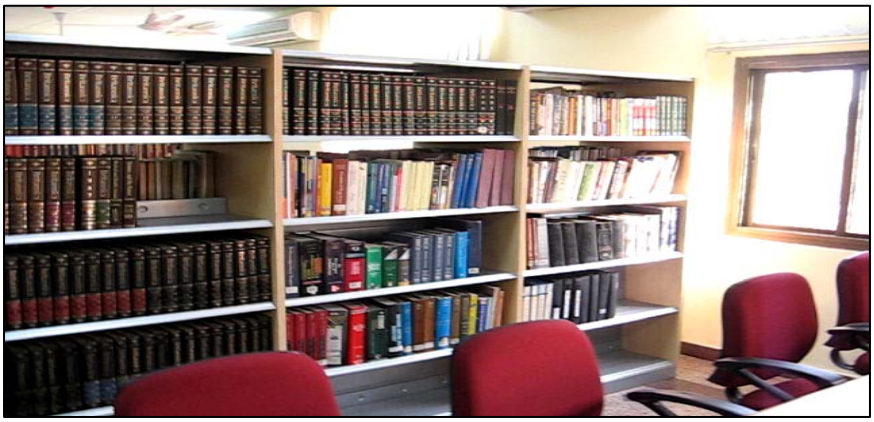

ICMR LIBRARY & INFORMATION CENTRE

TEL: 26588980/279(Ext.)

26589585(D)

E-mail: icmrhq_11@yahoo.co.in

Joining European and Indian Grids for e-Science Network Community

B.K.Gulati
National Institute of Medical statistics (ICMR)

The EU-IndiaGrid project, funded by the European Commission under the Research Infrastructures Programme, aims to make available a common, interoperable Grid infrastructure to the European and Indian Scientific Community, in order to support existing EU-Indian collaborations in e-Science and promoting new ones.

The major objectives of EU-IndiaGrid can be summarized as follows:

• To offer an effective answer to the demanding computing needs of several common EU-India research projects;

• To support the interconnection and interoperability of the European Grid Infrastructure EGEE with the Indian Infrastructures GARUDA and DAE for the benefit of e-Science applications;

• To identify and aggregate actual and potential user communities for the newly implemented common infrastructure and promote its use through a specific outreach and dissemination programme;

• To develop synergies between scientific research and industrial communities, in order to foster the deployment of grid techniques in research and industrial applications within the Indian subcontinent.

Project Participants:

• Italian National Institute for Nuclear Physics (INFN, project coordinator),

• Abdus Salam International Centre for Theoretical Physics ICTP - Italy

• Bhabha Atomic Research Centre - India

• Cambridge University - United Kingdom

• Centre for Development of Advanced Computing, C-DAC - India

• Consortium GARR - The Italian Academic and Research Network - Italy

• Education and Research Network, ERNET - India

• Metaware SpA - Italy

• SAHA Institute of Nuclear Physics Kolkata - India

• Tata Institute of Fundamental Research Mumbai and National Centre for Biological Sciences - India

• University of Pune - India

• Variable Energy Cyclotron Centre, VECC Kolkata -India

Deployment Plan for EU-IndiaGrid

The project plans to support the interconnection between EGEE, and its thematic and regional extensions, with the

Indian Grids GARUDA and DAE. aiming to build a common infrastructure capable of fulfilling the computing requirements of several e-Science application domains. The project will represent also an instrument to form new collaborations aggregating both scientific and business communities, which may benefit of the possibilities offered by Grid technology.

Pilot applications in Biology, High Energy and Condensed Matter Physics, and Earth and Atmospheric Sciences will be deployed on this newly implemented infrastructure in order to validate it and to:

• provide support to several already existing EU-India collaborative projects;

• contribute to increased awareness of Grid developments among new research and industrial communities;

• improve the effectiveness of the Grid infrastructure for new applications and to promote scientific and industrial developments;

• foster the creation of new Euro-Indian collaborations in e-Science and business.

Existing and potential user communities from the e-Science and business environment will be identified, contacted, and involved in the project, through a specific outreach and dissemination programme, ultimately aiming to create an EU-IndiaGrid community bringing together over 300 organisations from Research, Business, and Academia.

After one year and a half of activity (as of June 2008) the project has already taken significant steps towards supporting these interconnection and interoperability of the major European and Indian infrastructures.

EU-IndiaGrid actively engages with the global research and business communities through targeted dissemination activities. These events help unleash the potential for further EU-Indian R&D on the Grid by mapping the knowledge and innovation landscape from both regions. A landmark in dissemination activity was the participation to the G8-UNESCO World Forum on Education Research and Innovation with a stand dedicated to Worldwide Grids for Research, Innovation and Development in collaboration with its sister projects EELA, EUChinaGRID, and EUMEDGRID. Participation at the event generated interest from Ministers of State, Government advisors, top-level scientists, conference speakers and attendants.

EU-IndiaGrid is closely involved in the drive towards intercontinental interoperability, through a set of strategic objectives and events, including active engagement with OGF, as well as EGEE's annual conferences, where the project has disseminated developments in applications and infrastructures and contributed to efforts dedicated to interoperability. Important follow-ups are represented by the active involvement in the Interoperability Meeting during the EU-IndiaGrid session in Taipei, Taiwan in November 2007, which marked an important step towards the planned 'Interoperability with Asia' Meeting at the e-Science2007 Conference, 10-13 December 2007, Bangalore, India.

Key achievements include:

• Setting up a test-bed for the benefit of EU-India Grid applications and mobilising a

hardware infrastructure of about 1200 core processors and 50 TB of disk for the benefit of EU-India Grid applications.

• Creating the conditions for the access to a high speed (1 Gb/s) EU-India intercontinental link for the EU-IndiaGrid research Community thanks to the support of Government of India Department of Atomic Energy.

• Providing Indian researchers with access to the intercontinental Grid Infrastructure, using a temporary Certification Authority through cooperation with Academia Sinica Taiwan (EGEE partner and Regional Operation Centre for Asia)

• Taking concrete steps towards an internationally recognised Indian Certification Authority with C-DAC, spearhead of the GARUDA Indian National Grid Initiative, acting as the selected institution.

• Building a Networked Community of over 500 members from more than 300 individual organisations with very highly qualified players from academic and research institutions, government agencies and commercial organisations.

• Transferring knowledge of Grid tools to researchers and scientists, allowing them to use more advanced computing tools and to port applications onto the Grid.

Events

Four EU-IndiaGrid Workshops were successfully held in Bangalore, Mumbai, Pune and Bhopal combining Training Tutorials and Networking Sessions. An additional training event dedicated to gLite site managers was organised in Kolkata.

The EU-IndiaGrid Conference held Bangalore in December 2007 was organised in cooperation with the 3rd IEEE Conference on e-Science and Grid computing, and was a key networking and knowledge-sharing event for the project.

A second event was organised in Europe in June 2008 in conjunction with the Open Grid Forum international conference, offering the audience a platform to discuss about still open challenging issues, continuing the discussions which have been raised during the first project conference

Applications

EU-IndiaGrid relies on four main pilot applications (biology, high energy physics, material science, earth and atmospheric sciences) and new ones are joining in. The accounting of the EU-IndiaGrid testbed gives a clear indication of the activity. In the first year a total of over 8000 jobs and about 81.000 kSI2K.hours of normalized CPU wall time usage have been measured have been measured for the euindia VO using complementary tools (EGEE Accounting Portal, GridICE and DGAS).

The main results obtained by the pilot applications were selected for poster presentations at the IEEE e-Science 2007 Conference.

EGEE

The Enabling Grids for E-sciencE project is by far the largest and most important EU funded Grid infrastructure project. EGEE is a collaborative effort from among 139 institutions in 32 countries, organised in 13 ‘Federations’. The associated Grid production infrastructure is comprised of more than 250 sites across 50 countries offering around 55,000 CPUs, and more

than 20 Petabytes of storage. The infrastructure is available to users 24 hours a day, 7 days a week, achieving a sustained workload of approximately 150,000 jobs/day.

Areas like Academia and Industry, the EGEE project provides the opportunity where new users can receive a high standard of training and support, continuously improve and maintain current middleware, and combine a solid Grid infrastructure for scientific research and industry on a national, regional, and thematic basis.

The third two-year phase started on 1 May 2008, and is co-funded by the European Commission.

GARUDA

GARUDA is a collaboration of science researchers and experimenters on a nation wide grid of computational nodes, mass storage and scientific instruments that aims to provide the technological advances required to enable data and compute intensive science for the 21st century. One of GARUDA's most important challenges is to strike the right balance between research and the daunting task of deploying that innovation into some of the most complex scientific and engineering endeavors being undertaken today.

GARUDA aims at strengthening and advancing scientific and technological excellence in the area of Grid and Peer-to-Peer technologies. The strategic objectives of GARUDA are to:

• Create a test bed for the research & engineering of technologies, architectures, standards and applications in Grid Computing

• Bring together all potential research, development and user groups to develop a national initiative on Grid computing

• Create the foundation for the next generation grids by addressing long term research issues in grid computing

The Department of Information Technology (DIT), Government of India has funded the Centre for Development of Advanced Computing (C-DAC) to deploy the nation-wide computational grid 'GARUDA' which will connect 17 cities across the country in its Proof of Concept (PoC) phase with an aim to bring "Grid" networked computing to research labs and industry. GARUDA will accelerate India's drive to turn its substantial research investment into tangible economic benefits.

DAE

The Department of Atomic Energy is an Indian government department responsible for administration of India's nuclear programme.

The DAE is actively involved in the design, development and supply of LHC magnets, Power supplies, LHC control software, Data Acquisition System, detectors at CERN for the past few years. Indian scientists are taking active part in CMS and ALICE (A Large Ion Collider Experiment) experiments, devoted to find answers to the most fundamental questions at the foundations of matter constituents.

Specific activities are also ongoing in the area of Grid Middleware Software development, devoted to ensure grid-

enabling of IT systems. These activities cover the area of Grid Fabric management, Grid Data management, Data Security, Grid workload scheduling and monitoring services, fault tolerant systems etc. DAE developed number of Grid based Tools in the area of Fabric management, AFS file system, , Grid View and Data Management, which are being deployed by CERN in their LHC Grid operations starting since September 2002.

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Virulent Software: A Threat to Online Information in Cyberspace

Introduction:

Although most of the software products in the marketplace today are useful, constructive, and beneficial, other software serve a dangerous purpose. The Virulent software is designed to load and run without the user's knowledge, often hiding in normal programs. They execute their functions without prompting user for permission, they do not warn of potential danger to the system. In digital Library perspective these are dangerous because of their devastating nature to destruct digital information and the total computer system in digital library set up. The term virus is used to describe virtually any type of destructive software. A virus is a program or programming code that replicates by being copied or initiating its copying to another program, computer boot sector or document. Hence Virulent Software are the destructive or malicious software that are designed to load and run without the user's knowledge, often hiding normal programs. The vary nature of a computer virus makes it an ideal vehicle for spreading computer chaos.

Types of Virulent Software:

There are eleven types of malicious software engaged to infect or destruct digital information-bearing objects or files in any library these are as follows:

Software Bugs:

A Software Bug is an error, flaw, mistake, failure, fault or "undocumented feature" in a computer program that prevents it from behaving as intended. Bugs are rarely intentional but the vast majority of serious system crippling bugs is caught during the developer's alpha and beta testing process.

Trojan Horses:

A Trojan horse, also known as a Trojan, is a piece of malware which appears to perform a certain action but in fact performs another such as transmitting a computer virus. Basically, the Trojan horse is a destructive computer program concealed in the guise of a useful, run-of-the-mill program, such as word processor or graphic program.

Software Chameleons:

The difference between Software Chameleon and Trojan horse is that it almost never causes system damage. Instead, it generally makes a modification to a program. If a chameleon is introduced to a large multiuser platform like digital library, when the users type in their name and password, it may be recorded in a secret file and later there is a chance of abuse and misuse of digital information.

Software Bombs:

A software bomb consists of a trigger and a payload. The trigger can be set to go off at a specified time or to react when an event does or doesn't happen. Unlike viruses or Trojans that work their way in from the outside, software bombs are planted by someone with access to internal software. It is very destructive to digital objects in a digital library.

Logic Bombs:

A logic bomb is a program, or portion of a program, which lies dormant until a specific piece of program logic is activated. The logic bomb checks the system date and does nothing until a pre-programmed date and time is reached. At that point, the logic bomb activates and executes it's code.

Time Bombs:

Instead of triggering a bomb immediately or system-status conditions, a time bomb uses time or repetition conditionals. Time bombs are often used as a means of “making a statement” about a particular date and time.

Replicator:

The purpose of replicator is to drain system resources by cloning copies of it. Each clone copy is launched by the parent that created it. Since the virulent code is self- replicating, it is easy to spot with anti-virus tools.

Worms:

A computer worm is a self-replicating computer program. It uses a network to send copies of itself to other nodes (computer terminals on the network) and it may do so without any user intervention. Unlike a virus, it does not need to attach itself to an existing program. Worms almost always cause harm to the network, if only by consuming bandwidth, whereas viruses almost always corrupt or modify files on a targeted computer.

E-Mail Bombs:

It is electronic equivalent of a letter bomb, when the E-mail is read, an electronic bomb explodes.

Malicious Scripts:

These are constructed by the underground to aid an attack on a computer system. The script could take the form of C program that takes advantage of a known vulnerability in an operating system.

Viruses:

The most recognized and dynamic of the rouge software is the virus. A computer virus is a computer program that can copy itself and infect a computer without permission or knowledge of the user. A virus modifies other programs to include executable virulent code. As a result viruses can be extremely difficult to detect and even harder to erase and the task become increasingly powerful and sophisticated.

There are various viruses in operation now a days these are

- Program Virus
- Boot Sector Viruses
- File Infector Virus
- Triggers and Payloads
- File-specific Virus
- Memory-resident Virus
- Multipartite Virus
- Macro Virus

Sources and Spread of Viruses:

There are mainly two types of sources of computer viruses in a digital library. These are as follows:

1) Virus distributed via common diskettes: If virus-infected diskette is loaded to a computer system the hard disk is infected, and when a clean diskette is loaded to an infected system, when removed the previously clean diskette is infected with the virus.

2) Virus distributed via networks: Virus is transmitted via data communication to another node on the network, where it propagates itself.

Recognizing an Infection in the Computer System: Following are some of the important signs of virus activity:

- A warning is generated by a virus scanner
- A bizarre message appears
- The computer is acting strangely for no apparent reason
- The computer starts to boot, but freezes before displaying a DOS prompt
- Programes and data files become erased or corrupted without warning
- An error message indicates a problem with the file allocation table or the partition
- The amount of available system RAM suddenly or steadily decreases
- Memory maps reveal strange viruses
- File names, extensions, attributes, or date codes are changed unexpectedly
- Unknown file mysteriously appear

Protection Measures: Since prevention is better than cure, wide range of antivirus softwares of varying effectiveness available, commercially. These softwares normally consist of one or more following utilities:

- **Scanner:** It is the most common type of anti-virus software which identifies the virus by selecting virus' signature.
- **Vaccine:** This is the earliest form of virus protection, which appended small programs and checksums to various executable files. It is used to combat unidentified virus with the help of frequent calculation of checksums.
- **File Comparisons:** A plain and simple technique utilized byte-by-byte comparisons between known-good files and potentially infected files.
- **Antidotes:** Software antidotes are close cousin to vaccines, where the antidote "surgically removes" the virus. But antidotes are designed specifically to deal with a limited set of viral strains within a small group of program types.
- **Memory-Resident Utilities:** One breed of anti-virus tool can be loaded into memory where it will remain resident and provide "last-minute" protection against viral infiltration of disk commands and viral activity.
- **Disk Mappers:** The disk-mapping technique is similar to the file-comparison process. A mapper maintains a single data file, which contains a coded "snapshot" of the protected disk files and the "key map".

Conclusion:

One of the biggest threats to computer system is spread of malicious software. As a tool of offensive information warfare, this destructive software corrupts the integrity of computer systems and networks in digital library. Once they have penetrated into a system, they can infect, corrupt or delete the valuable digital information. Several preventive and counter measures should be taken to combat this software attack.

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- hhttp://www.mcafee.com
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NEWS

SALIS Organizes its National Conference on Re-Building the Libraries: Learning from the Past to Plan for the Future From August 8 to 9, 2008, at Dr.Mahalingam Vigyan Bhavan, Kumaraguru College of Technology, Coimbatore, Tamilnadu.

Organizers: SALIS and Kumara guru College of Technology

The conference aims at providing a forum for learning and exchange of ideas among practicing librarians, information specialists, information providers, LIS teachers and students.

The 3rd World Congress of ISIS, Rio de Janeire, Brazil, 14-16 September, 2008.

The 3rd World Congress on ISIS (ISIS3) will take place in the city of Río de Janeiro, 14-16 September 2008, as one of the activities of the 8th Regional Congress on Information for Health Sciences (CRICS8), sponsored by FIOCRUZ and BIREME/OPS/OMS, and in parallel with a series of meetings of regional and global information and knowledge management networks. As such it will be a suitable environment to facilitate and enrich the realization of the ISIS Congress.

23rd IASLIC National Conference on Library Profession in Search of a New Paradigm, Dec 10-13, 2008, Bose Institute, Kolkata.

Organizers: IASLIC and Bose Institute

http://www.iaslic1955.org/seminar.htm