Next big thing on web: grid

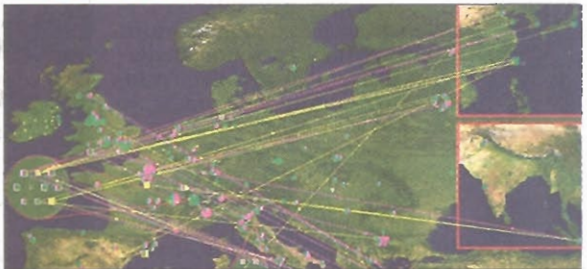
Shobhan Saxena | TNN

Geneva: With domain names in Hindi, Arabic and Chinese set to become a reality on the Web, the pundits in this science hub of Switzerland, where the internet was arguably invented, claim the next giant leap towards internationalisation will be the grid, which is just weeks away from powering up.

The grid, which is made of thousands of desktops, laptops, supercomputers, data vaults, mobile phones, meteorological sensors and telescopes will start work when protons beams collide with each other in the worlds biggest experiment ever inside a deep tunnel here on the French-Swiss border.

It is a revolution, say scientists of the European Organisation for Nuclear Research (CERN) because it uses the internet but is not the internet. Using cloud computing, the grid will combine the computing resources of more than 100,000 processors from more than 170 sites in 34 countries and will be accessible to thousands of physicists globally. The scientists claim it will change the way the information superhighway works.

The Future of Science



In '06, a test grid analysed 300, 000 avian flu drug components

- The Web just shares info on computers, the Grid also shares computing power and data storage capacity
- Scientists can log on anywhere in the world, processing on machines across the planet
- CERN needs the Grid to store 15 pentabytes — equivalent to a 20-km high stack of CDs
- Grid computing can help drug discovery by speeding up the computer-based screening and testing process

Small computer grids similar to power grids have been in operation for some time, but CERN's will be the biggest one of them all and will become a reality when its Large Hadron Collider (LHC) beccmes operational this month. Maarten Litmaath, the Dutch physicist who heads CERN's computing centre, told TOI, "When it begins operations, the LHC will produce roughly 15 petabytes (15 million gigabytes or equivalent to storage capacity of 20 million CDs) of data annually, which thousands of scientists around the world will access and analyze. Our grid will make it possible for scientists around the world to access this data real time."

Till now, a giant grid was considered something of a pipe dream, says Litmaath. Its implications, he says, are enormous. "Imagine several million computers from all over the world, and owned by thousands of different people. And imagine if these PCs, workstations, servers and storage elements can all be connected to form a single, huge and super-powerful computer. This sprawling, global computer is what the grid will be," Although there are several claimants to the internet's authorship, it was here that British software whiz Tim Berners-Lee and other scientists set the stage for the internet explosion in 1990.

▶ Data sharing to be easier than ever, P 10

Data sharing to be easier than ever

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Geneva: The web changed the world forever and now CERN expects great results from grid computing.

This, Maarten Litmaath, the Dutch physicist who heads CERN's computing centre, says will power science from around the globe — scientists can share data, data storage space, computing power, and results. Together, researchers can tackle bigger questions than ever before: from disease cures and disaster management to global warming and the mysteries of the universe.

CERN already has at least three centres in India with which it shares data and expertise on a regular basis, something that can only grow exponentially.

Many believe the grid might be a boon for developing countries like India, which rank low on the social development index. The grid will allow data-sharing on floods and droughts, help distance-education and medical treatment and perhaps, even, say hopeful scientists, help arrest the brain drain.

Litmaath is clear that the grid will mean scientists and researchers will not be forced to leave their country to access resources.

The giant grid will not have a central administrator, making it different and more democratic - than the average internet sites run by servers with just one controller. It is also arguably safer than the net because data can be stored at multiple locations.

The small grids already at work have engineers studying alternative fuels and artists collaborating to create complex animations for feature films such as Kung Fu Panda.