QUESTIONS & ANSWERS

What is US Ignite?

US Ignite was initiated with leadership from the National Science Foundation in response to the Administration’s call to ensure all Americans have access to the information and tools necessary to thrive in a 21st-century economy.

The US Ignite Initiative has three primary components: 1) leveraging investments in advanced networks such as GENI, 2) jumpstarting public sector gigabit applications and services, and 3) launching the US Ignite Partnership, an independent nonprofit responsible for convening the private sector.

Does NSF fund US Ignite?

NSF is funding the GENI prototype network as well as its expansions within and across campuses; the Mozilla competitions and prizes; and the new public sector applications and service deployments.

The US Ignite Partnership is an independent organization, which receives funding from its partner companies, such as Juniper, Cisco, Verizon, and Comcast.

What is GENI?

The Global Environment for Network Innovations, or GENI, is an NSF-funded mid-scale infrastructure project. It is a unique, virtual laboratory for at-scale networking experimentation, supporting at-scale experimentation on shared, heterogeneous, highly instrumented infrastructure. The GENI infrastructure:

- Allows for deep programmability throughout the network, promoting innovations in network science, security, technologies, services and applications; and
- Provides collaborative and exploratory environments for academia, industry and the public to catalyze groundbreaking discoveries and innovation.

Is US Ignite part of GENI?

US Ignite is not a part of GENI, but the two efforts and activities are related. Ignite is leveraging NSF investments in the GENI network to expand GENI capabilities and build out additional test beds in places beyond University campuses where entrepreneurs, open source developers, and citizens can use it to experiment on future applications and services.

Can you explain the GENI technology (SDN, virtual networking, etc.)?

The four most important technical parts of GENI include:

- High Symmetric Bandwidth
- Software-Defined Networking and OpenFlow
- Distributed Cloud Resources (GENI Racks)
- Virtual Networks and Programmable Slices and Access to Advanced Resources

High symmetric bandwidth allows for things like uncompressed high definition video transmission - which has huge advantages over the IP-based transmission commonly used, and minimizes delays in

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things like video conferencing. For truly interactive experiences, uncompressed video with its high
bandwidth requirements is best, and we expect a number of Ignite applications to use uncompressed
video in one form or another.

The next-generation Internet will take advantage of Software Defined Networks, which takes the
“intelligence” of routing data out of the switches and routers on shelves, and puts more of it into the cloud.
SDN tricks servers into thinking that they’ve got network gear all to themselves, configured exactly the
way they like it, when they are really sharing that gear with other servers. More servers can share less
network gear and they can also be moved around easier -- a big plus for applications like cloud computing.

Distributed Cloud Resources (e.g., GENI racks) are a kind of cloud computing in which the cloud is
itself distributed throughout the network. This has distinct advantages including pre-staging information
where it’s needed, processing data traffic more locally, and dramatically improving responsiveness while
reducing latency.

The GENI project has the ability to create Virtual Networks tailored to match specific advanced
applications as well as provide unique Access to Advanced Resources, such as advanced
computational, sensor, storage and data resources provided by the owners and operators of new
technology.

In GENI terminology, the collection of network, distributed, and advanced resources available in a virtual
network to an application is called a “slice.” Slices are an important concept because they can be
thought of as the delivery mechanism for an application.

Is US Ignite building broadband network?

US Ignite is not building a broadband network or creating new infrastructure; rather, it is leveraging
existing infrastructure and giving it new capabilities.

Specifically, US Ignite is partnering with commercial providers, communities, and research and education
networks (RENs) that can offer 100MB+ broadband networks and is encouraging them to create GENI-
enabled test beds within their service areas.

Why are you focusing on six priority areas?

Public interest in new technologies is primarily driven by practical use and applications. The lay-public is
generally not interested in understanding how network technologies make things like ultra-high-speed
networks possible, but is instead more interested in discovering the applications that might help them live
and work better and more efficiently.

As this gigabit infrastructure is built out, it has the potential to transform various sectors of critical
importance to the country. The six US Ignite priority areas are advanced manufacturing, health IT,
transportation, education and workforce development, clean energy, and emergency preparedness and
public safety.

How does US Ignite fit in with other efforts like Gig.U?

US Ignite is unique among current initiatives. It is focused on spurring the creation of compelling
applications that will drive investments in advanced broadband infrastructure.

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Other efforts such as Gig.U are focused on the deployment of advanced broadband infrastructure in strategic communities nationwide through harnessing the innovation and leadership of America’s higher education institutions and leveraging the market power of leading industry providers.

US Ignite intends to create a national test bed for next-generation applications by linking advanced infrastructure providers and communities (including Gig.U participants) who will provide compatible next-generation infrastructure. US Ignite encourages its members to contribute to the goals of Gig.U to expand access to such infrastructure.

**What kind of efforts does US Ignite support?**

US Ignite supports commercial networks, university networks, research institutions, and any effort that can support 100+MB data speeds, software-defined networking, and advances made through GENI.

**How is US Ignite working with Mozilla?**

Mozilla is funded by NSF to lead open innovation challenges, which will bring new talent to the development of public sector gigabit application development.

**What is the difference between the US Ignite Initiative and the US Ignite Partnership?**

The US Ignite Initiative is a federal government project led by the National Science Foundation. The US Ignite Partnership is one of the three primary components of the Initiative. It is an independent nonprofit with responsibility for encouraging the private sector and foundations to participate in US Ignite through contributions of various kinds.

**What does the current NSF / White House budget mean for US Ignite?**

The National Science Foundation has requested $10 million in the FY2013 budget to support the US Ignite Initiative, which would focus on advances in wired and wireless networking, security, distributed and cloud computing as well as public sector applications and services.

The US Ignite Partnership is an independent nonprofit organization, which receives funding from its partner organizations, and is not affected by the federal budgeting process.