OCCAID
Service Realignment Project (SRP)
Frequently Asked Question

Q: What is Service Realignment Project (SRP)?

A: The SRP is a comprehensive program for fiscal year 2006, which revises the service offerings by OCCAID to the community. The goal of the SRP is to provide a more enhanced and dependable environment for enrichment of future Internet technologies (i.e. IPv6), by enhancing our services to general end users and improving the quality and commitment of our service levels to enterprise and educational customers.

Q: So in your outline document, you are asking for money. Given the amount of donations received by OCCAID in the past, what problems are you trying to solve by charging fees?

A: OCCAID currently faces a number of operational challenges and difficulties. Some of these challenges are:

1. *Unstable and "cheap" hardware and software used for routers.*
   The current equipments in use by OCCAID are operated on recycled computer hardware that is otherwise not suitable for mission critical applications. We've already experienced over two complete hardware failures in year 2005, which brought down services for affected users for over three days.

   Additionally, our current critical POPs which terminate our external peering connections with other Internet networks only have a single router for each location, instead of two or more for redundancy. We currently don't even have the funding to purchase spare equipment in case of a hardware failure in one of these POPs. We are simply lucky that we haven't seen wide hardware failures yet, but it is important for us to prepare as more and more people are relying on our network for their applications. Otherwise, it is just an accident waiting to happen.

   Building upon the hardware concerns, we also have serious concerns with software in use to run our core backbone. The software we operate is called "-j3b patch", which is based off of GNU/Quagga 0.96.5, a free open-source routing software for Unix and Unix-like operating systems. However, the problem with open-source routing software is that every network's setup is different. It is difficult for the developers to make the most reliable and stable routing platform for everybody. OCCAID is no exception to this rule, and we've experienced many network disruptions due to software issues. Due to lack of funding to purchase commercial routers, these issues prompted OCCAID operators to develop a custom internal modification to Quagga, called the "-j3b patch" which addresses a number of the bugs and implementation issues enough to the point of achieving acceptable stability. Even so, we still have issues of having to reload complete routing protocol due to additional unknown bugs we simply don't have any more time to trace.

   Furthermore, customers are now demanding more protocols and options, such as multicast and unicast IPv4. With the current routing software in use today, no matter how much free time we have on our hands, we simply won't get there. It will be cheaper to purchase commercial routing platform than taking the time to reinvent the wheel.

2. *Lack of Service Level Agreements and Emergency Access Rights*
   While we are grateful for the remote hands and assistance our sponsors had given us during network and router outages, there is only so much we can ask when everything is free. In the past, the amount of production users and traffic on our backbone was insignificant that even when a POP goes down over the weekend, it can be fixed days or week later. However, today, despite the experimental nature of the service, people will experience inconvenience when their application suddenly stops working without any prior notification. And when it does stop working, despite the fact that it is free service, they would expect to see it fixed rather quickly. We currently don't have the means to facilitate rapid trouble resolution in the event of an outage, as we are not a paying customer of many of our infrastructure partners. Through SRP, we plan to become a paying customer of each sponsor, protected under their Service Level Agreement, giving us access to more assets during the critical time of need.

3. *The IPv6 Quality Chicken and Egg Problem.*
   Several enterprise customers in North America have experienced yet another chicken and egg problem. They first asked their commercial IPv4 transit provider for IPv6. When the commercial provider supports IPv6, the service quality was too poor to be acceptable. However, given that IPv6 does not provide any short term revenue opportunities for many commercial carriers, it is difficult for them to fix problems right away.

   Thus, many of enterprise customers have adopted a different approach – that is asking OCCAID for connectivity. Since OCCAID is an IPv6-focused network, it already has the technical time and human resources to focus in improving the quality of service. However, these customers now have a different

concern: service from OCCAID is unofficial and could get turned off without any contract assurance. Furthermore, OCCAID's network services are experimental in their nature that any normal businessman would feel insecure with respect to future dependability on our services. Universities and National Research and Education Networks (NRENs) in North America have also voiced the same concern with respect to OCCAID's current service offerings. Additionally, OCCAID's backbone network running on cheap and recycled hardware that possess approximately 10% annual failure rate surely does not help either.

The SRP will address these concerns by better positioning our services to provide dependability and reliability.

Q: Isn't charging for service going against the will of the community?

A: No. We understand the difficulty in acquiring funding for many new IPv6 players in North America. That is why we are implementing Associate Membership with our strategic partners and members so that people without funding can still get their experimental connection at free of charge. Additionally, by partnering up with other IPv6 industry leaders, we are able to provide better customer service and support to organizations that currently do not have any funding for pursuing their IPv6 connectivity.

Q: It almost sounds like you are going to profit by charging users while getting free services from your sponsors. Is that the case?

A: No. The fee structure for General Membership has been carefully determined so that the funding will recover for expenses to rebuild and upgrade our network infrastructure. As being one of the largest IPv6 networks in the world, especially being non-profit, it is not possible for us to profit out of membership charges when faced with an aging network that requires funding to overhaul. Another purpose of SRP is to further use the available funding to discuss financial compensation for our sponsors, such as becoming a paying customer. This ensures service commitment and quality for everyone connecting to our network.

Q: What about end-users? Will they no longer be able to receive service?

A: The end-users who are directly connected to our network as to date will remain connected. As for new end-users, part of the SRP agenda is to deploy SixXS service throughout many locations of our network. SixXS is a strategic partner where we will be working with them in both short and long term to make services more easily accessible to a large number of end users in North America.

Q: Would non-paying members get placed on a separate network from paying members?

A: All connections to OCCAID, whether free or not, will be on the same network.

Q: Will your peering policies become more restrictive as a result of this project?

A: Our interconnection policies are set forth and updated by the peering committee as the overall traffic condition and customer requirements on our network change. While SRP itself does not call for change of policies in peering, the committee may decide at anytime in updating its policies to conform to changing network traffic and demand condition.

Q: Will current sponsors need to pay for membership?

A: No. Sponsors are not charged for any services.

Q: In technical aspect, what are some changes to your network that will be beneficial for us as a result of SRP implementation?

A: One of the first priorities is to replace aging POPs that have been running for long beyond their MBTF (Mean Time Between Failures) figure. They will be replaced with brand new equipments and upgraded network capacity.

Secondly, through SRP, we will be implementing the Gigabit Plus Initiative (GPI), which is our latest network project that will upgrade the entire eastern seaboard to over 2Gbps of capacity between major metropolitan POPs during Phase I. Phase II will upgrade rest of the US network and Phase III will implement up to 3Gbps of transport ring to Europe.

For immediate short term improvements, we will be joining more production exchange points that support native IPv4 and IPv6 peering. We will also work with some of our largest peers to begin relocating tunneled and public infrastructure peering to private circuits so that quality can be better managed bilaterally between the two parties.

Additionally, we will also purchase commercial routing equipments to reliably add rich services to our network, first and foremost being multicast. Multicast has been one of the most significant demands made by our customers and we look forward to accurately spend our available funding to implement that service.

Finally, the SRP also calls for use of funding to secure increased service availability. We will be becoming a customer to several of our current infrastructure partners so that additional assets are available in the event of a critical network outage.

Q: Your Architecture Confirmation Document (ACD) looks quite confusing. Will SRP address the confusing provisioning process?

A: Yes. During the SRP implementation, we will be in close consultation with our partners to determine a revised provisioning process that will facilitate easier and quick setup process for new customers.

Q: OCCAID's legacy TBONE experimental network platform was renamed to NBONE, which is currently unknown by much of the public. Will NBONE members see any benefit from SRP?

A: We will provide NBONE with sponsored collocation, bandwidth and support as long as NBONE members remain committed to the maintenance and growth of the NBONE project-- this includes development of a web site for the community.

Q: Will OCCAID provide any official assurance to its new members, especially enterprise and educational customers?

A: Each new member will sign a Memorandum of Understanding (MoU) agreement which outlines the mutual responsibilities in maintenance of the bilateral relationship. While OCCAID cannot provide a Service Level Agreement (SLA) due to our academic and experimental nature, the MoU will provide a guideline which strives for mutual responsibility and service quality.