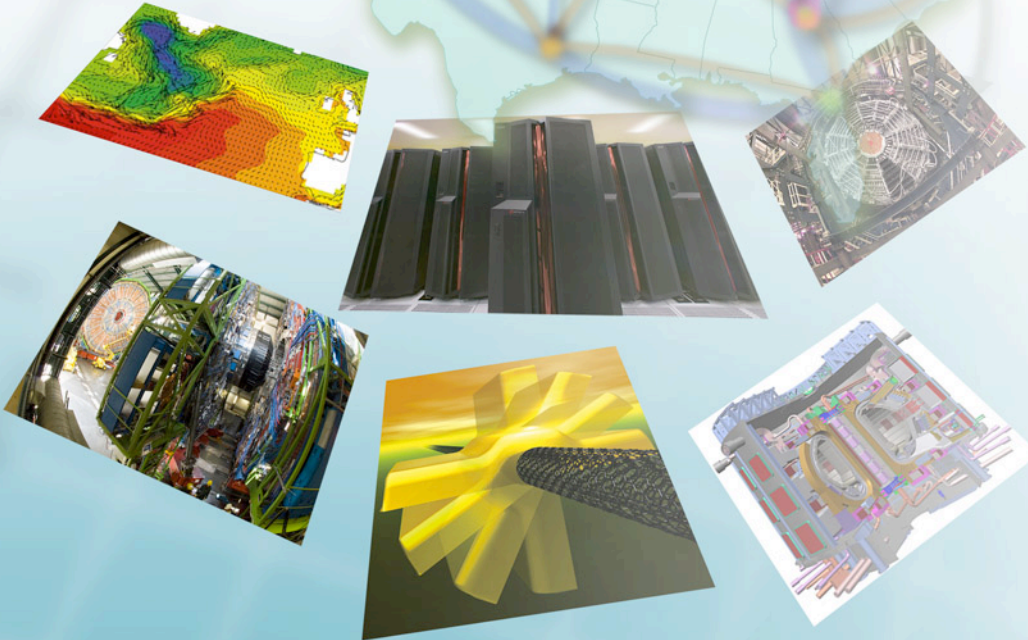


On-demand Secure Circuits and Advance Reservation System (OSCARS)

Chin Guok
Network Engineering Group

Energy Sciences Network
Lawrence Berkeley National Laboratory

ESCC/Internet2 Joint Techs Workshop
Batavia, IL
July 15 2007



Networking for the Future of Science



OSCARS Overview

Path Computation

- Topology
- Reachability
- Constraints

Scheduling

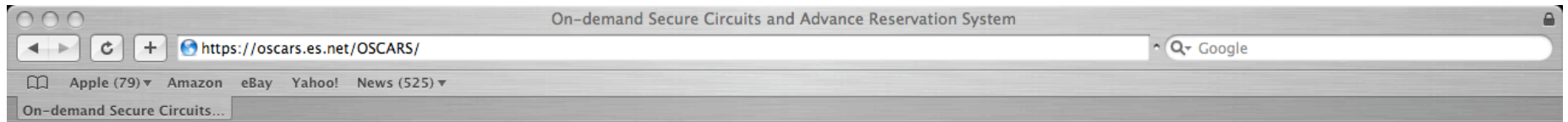
- AAA
- Availability

OSCARS
Guaranteed
Bandwidth
Virtual Circuit Services

Provisioning

- Signalling
- Security
- Resiliency/Redundancy

OSCARS Web User Interface (1/4)



On-demand Secure Circuits and Advance Reservation System

In collaboration with the [Internet2](#) BRUW Project

July 13, 2007 16:04

Reservation creation form

Reservations

Create Reservation

Users

Log out

Reserve bandwidth

Reset form fields

Required inputs are bordered in green. Ranges or types of valid entries are given in parentheses after the default values, if any. If date and time fields are left blank, they are filled in with the defaults. The time zone is your local time zone.

WARNING: Entering a value in a red-outlined field may change default routing behavior for the selected flow.

Source	<input type="text" value="distressed.es.net"/>	(Host name or IP address)
Source port	<input type="text"/>	(1024-65535)
Destination	<input type="text" value="snv2-pt1.es.net"/>	(Host name or IP address)
Destination port	<input type="text" value="5005"/>	(1024-65535)
Bandwidth (Mbps)	<input type="text" value="10"/>	(10-5000)
Protocol	<input type="text"/>	(0-255, or string)
Differentiated service code point	<input type="text" value="8"/>	(0-63)
Purpose of reservation	<input type="text" value="Scavenger service test traffic"/>	(For our records)
Ingress loopback	<input type="text"/>	(Host name or IP address)
Egress loopback	<input type="text"/>	(Host name or IP address)
Year	<input type="text" value="2007"/>	2007
Month	<input type="text" value="7"/>	7 (1-12)
Date	<input type="text" value="13"/>	13 (1-31)
Hour	<input type="text" value="16"/>	16 (0-23)
Minute	<input type="text" value="7"/>	4 (0-59)
Duration (Hours)	<input type="text" value="0.1"/>	0.01 (0.01 to 4 years)

OSCARS Web User Interface (2/4)

The screenshot shows a web browser window with the URL <https://oscars.es.net/OSCARS/>. The page title is "On-demand Secure Circuits and Advance Reservation System". The page content includes the Internet2 and ESnet logos, a navigation bar with "Reservations", "Create Reservation", "Users", and "Log out" buttons, and a "Reservation Details" section. The reservation details table shows a reservation with a status of "PENDING", which is highlighted by a red arrow. The reservation was created on July 13, 2007, at 16:05, with a tag of "ESnet-1075-chin@es.net-2007-07-13". The reservation details table is as follows:

Attribute	Value
Tag	ESnet-1075-chin@es.net-2007-07-13
User	chin@es.net
Description	Scavenger service test traffic
Start time	2007-07-13 16:07
End time	2007-07-13 16:13
Created time	2007-07-13 16:05
Bandwidth	10000000
Burst limit	10000000
Status	PENDING
Source	198.128.1.39
Destination	134.55.211.21
Destination port	5005
DSCP	8
Class	4
Nodes in path	lbl-rt2-oscars.es.net: 134.55.75.94, lblmr1-ge-lblrt2.es.net: 134.55.209.21, slacmr1-lblmr1.es.net: 134.55.219.10, snv2mr1-slacmr1.es.net: 134.55.217.2

OSCARS Web User Interface (3/4)

The screenshot shows a web browser window with the URL <https://oscars.es.net/OSCARS/>. The page title is "On-demand Secure Circuits and Advance Reservation System". The page features the Internet2 and ESnet logos, along with the text "In collaboration with the [Internet2](#) BRUW Project". A navigation bar includes "Reservations", "Create Reservation", "Users", and "Log out". The main content area is titled "Reservation Details" and contains the instruction: "To return to the reservations list, click on the Reservations tab." Below this are "CANCEL" and "Refresh" buttons. A table displays reservation details, with a red arrow pointing to the "ACTIVE" status.

Attribute	Value
Tag	ESnet-1075-chin@es.net-2007-07-13
User	chin@es.net
Description	Scavenger service test traffic
Start time	2007-07-13 16:07
End time	2007-07-13 16:13
Created time	2007-07-13 16:05
Bandwidth	10000000
Burst limit	10000000
Status	ACTIVE
Source	198.128.1.39
Destination	134.55.211.21
Destination port	5005
DSCP	8
Class	4
Nodes in path	lbl-rt2-oscars.es.net: 134.55.75.94, lblmr1-ge-lblrt2.es.net: 134.55.209.21, slacmr1-lblmr1.es.net: 134.55.219.10, snv2mr1-slacmr1.es.net: 134.55.217.2

OSCARS Web User Interface (4/4)

The screenshot shows a web browser window with the URL <https://oscars.es.net/OSCARS/>. The page title is "On-demand Secure Circuits and Advance Reservation System". The navigation menu includes "Reservations", "Create Reservation", "Users", and "Log out". The main content area displays "Reservation Details" for a reservation made on July 13, 2007, at 16:18. The reservation status is "FINISHED", which is highlighted by a red arrow. Below the details is a "Refresh" button and a list of links: "Documentation", "ESnet", "Berkeley Lab", and "Notice to Users".

On-demand Secure Circuits and Advance Reservation System

July 13, 2007 16:18 Successfully got reservation details

Reservations Create Reservation Users Log out

Reservation Details

To return to the reservations list, click on the Reservations tab.

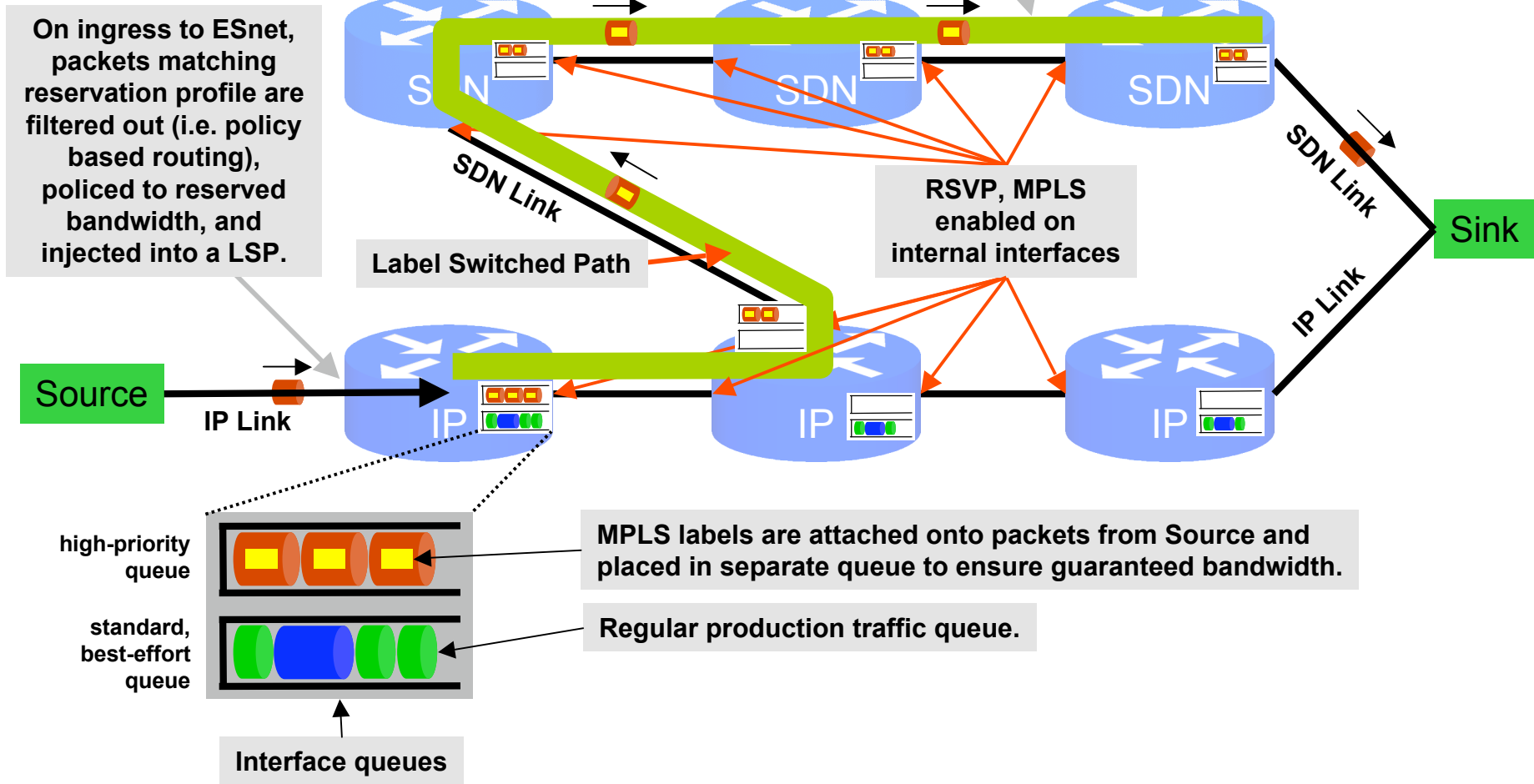
Refresh

Attribute	Value
Tag	ESnet-1075-chin@es.net-2007-07-13
User	chin@es.net
Description	Scavenger service test traffic
Start time	2007-07-13 16:07
End time	2007-07-13 16:13
Created time	2007-07-13 16:05
Bandwidth	10000000
Burst limit	10000000
Status	FINISHED
Source	198.128.1.39
Destination	134.55.211.21
Destination port	5005
DSCP	8
Class	4
Nodes in path	lbl-rt2-oscars.es.net: 134.55.75.94, lblmr1-ge-lblrt2.es.net: 134.55.209.21, slacmr1-lblmr1.es.net: 134.55.219.10, snv2mr1-slacmr1.es.net: 134.55.217.2

[Documentation](#) | [ESnet](#) | [Berkeley Lab](#) | [Notice to Users](#)

Mechanisms Underlying OSCARS

Based on Source and Sink IP addresses, route of LSP between ESnet border routers is determined using topology information from OSPF-TE. Path of LSP can be explicitly directed to take SDN network. On the SDN Ethernet switches all traffic is MPLS switched (layer 2.5).



OSCARS Information

- [Info URL: http://www.es.net/oscars](http://www.es.net/oscars)
- Services URL:
<https://oscars.es.net/OSCARS/>
- Contact:
 - Chin Guok (chin@es.net)
 - David Robertson (dwrobertson@lbl.gov)