An Advanced International Distributed Programmable Environment for Experimental Network Research: "Slice Around the World" Demonstration

A Demonstration and Presentation By the Consortium for International Advanced Network Research

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Initiative Motivation

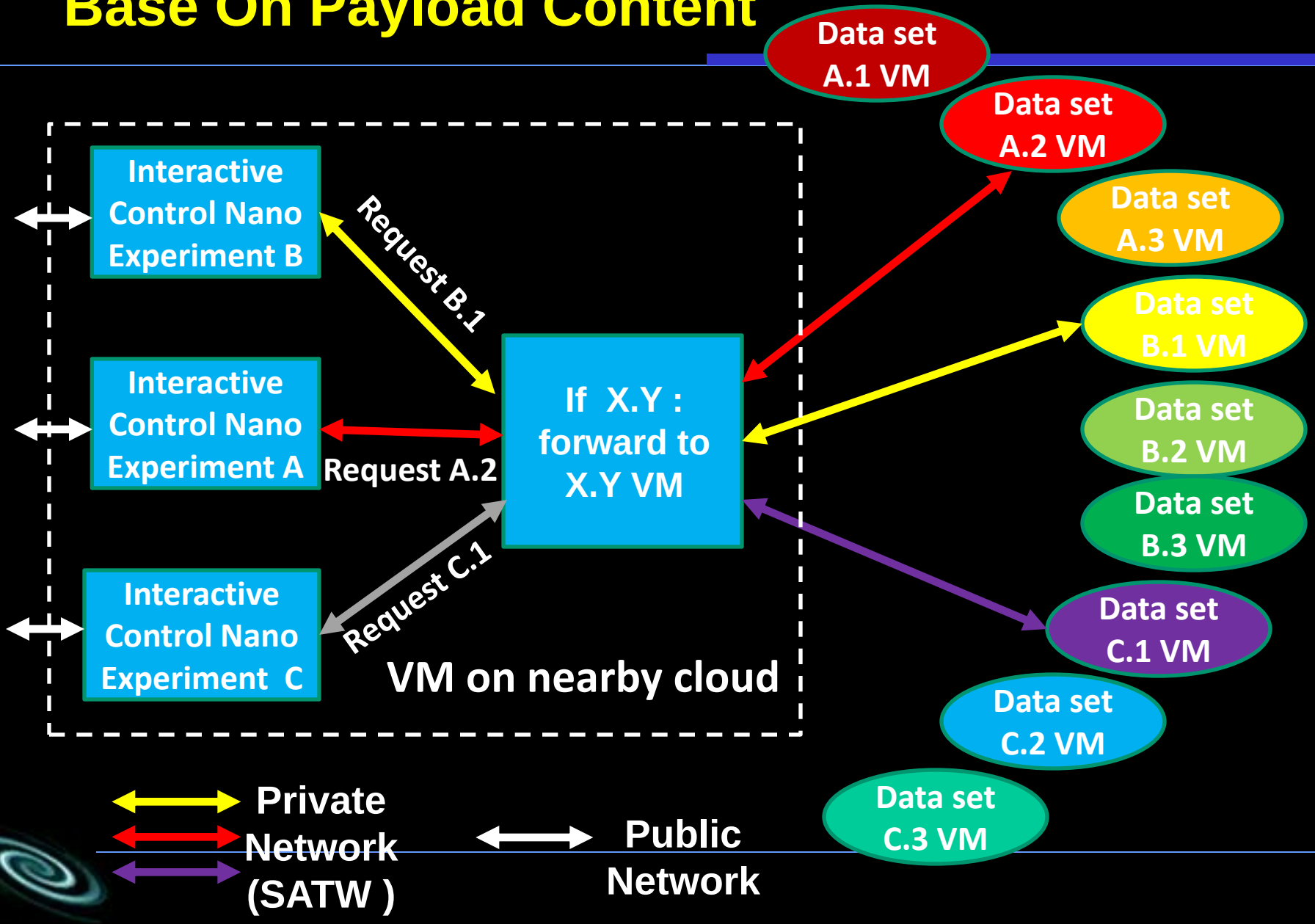
- **This Project Is Inspired By Multiple Innovative Network Research Initiatives Around the World**
  - **The National Science Foundation Funded Global Environment for Network Innovations (GENI)**
  - **The European Union Future Internet Research Environment (FIRE)**
  - **The Japanese New Generation Network (NGN)**
  - **The Korean Future Internet Initiatives**
  - **G-Lab At Kaiserslautern**
  - **And Many Others.**

Overview

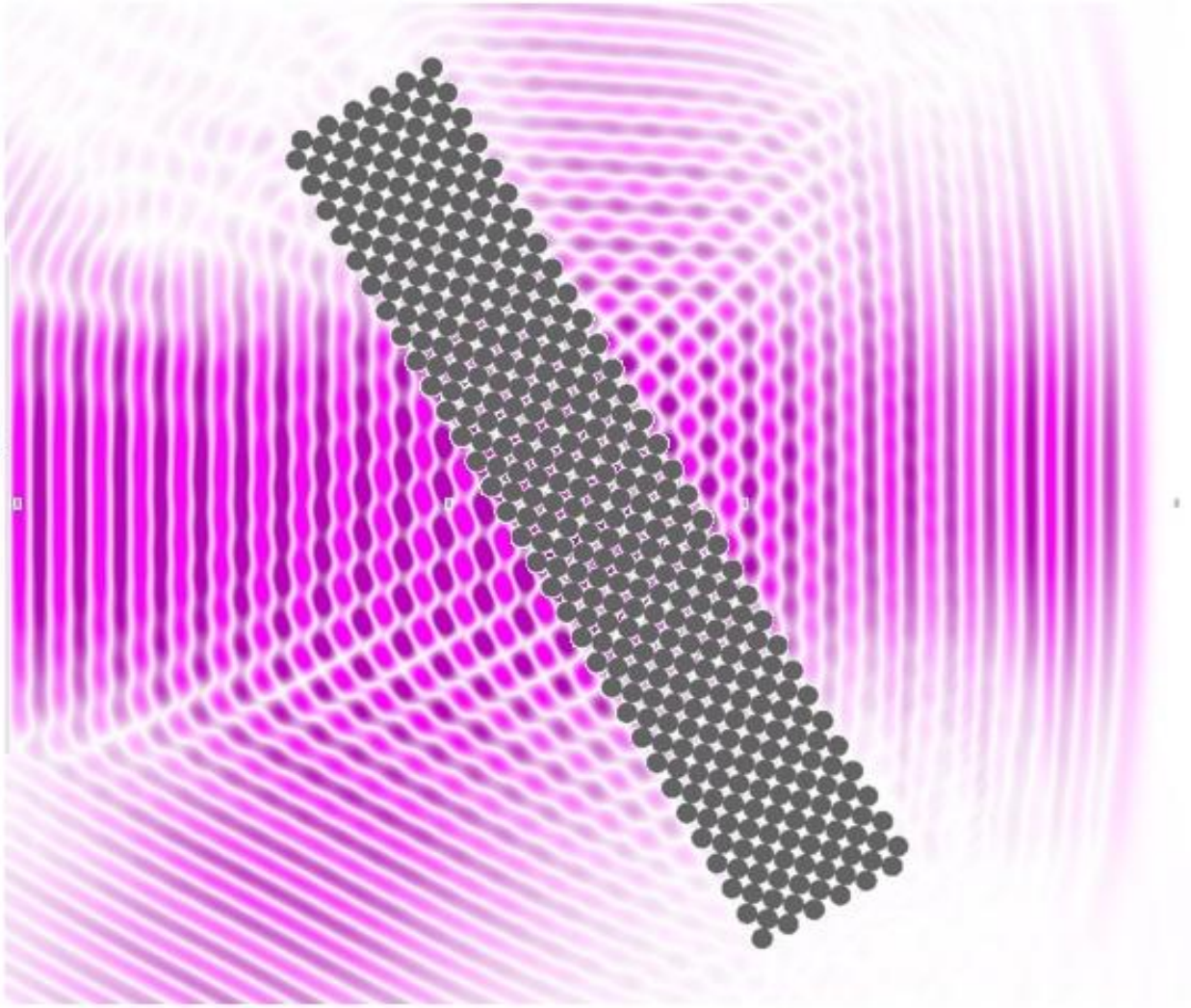
- **A Basic Goal of This International Consortium Is To Create A Large Scale Distributed Environment for Basic Network Science Research, Experiments, and Demonstrations.**
- **This Initiative Is Designing and Implementing An International Highly Distributed Environment (at Global Scale) That Can Be Used for Advanced Next Generation Communications and Networking.**
- **The Environment Is Much More Than "A Network" – Other Resources Include Programmable Clouds, Sensors, Instruments, Specialized Devices, and Other Resources.**
- **This Environment Will Be Based On Interconnections Among Major Network Research Centers Around the World**
- ***=> The Initial Concept for the "Slice Around the World" Demonstration Was Suggested By Chip Elliott!***

KUAS
NetFPGA
NOX
OpenFlow
NCKU
NetFPGA
NOX
OpenFlow
University of Victoria
GENICloud
OpenFlow
InstaGENI
CRC
NOX
OpenFlow
NetFPGA
東京大学
THE UNIVERSITY OF TOKYO
VNode
NOX
OpenFlow
NetFPGA
KiSTi
www.kisti.re.kr
KRLight
NCHC
NetFPGA
NOX
OpenFlow
canarie
OpenFlow
cenic
PACIFIC NORTHWEST GIGAPOP
JGN-X
NOX
OpenFlow
NetFPGA
ETRI
GLORIAD
Northern Wave
LABS hp
GENICloud
CNC
OpenFlow
NORTHWESTERN UNIVERSITY
NetFPGA
NOX
OpenFlow
GENICloud
InstaGENI
STARLIGHT SM
The Optical STAR TAP
MREN
OpenFlow
NLR
light the future
OpenFlow
renci
ExoGENI
OpenFlow
AMPATH
PATHWAY TO THE AMERICAS
OpenFlow
INTERNET 2
THE UNIVERSITY OF UTAH
InstaGENI
CPqD
OpenFlow
RNP
NL Light
sara
NOX
OpenFlow
NetFPGA
MAGPI
Princeton University
OpenFlow
InstaGENI
GENICloud
TECHNISCHE UNIVERSITÄT KAISERSLAUTERN
DFN
Deutsches Forschungsnetz
GÉANT2
ja.net
University of Essex
OpenFlow

Slice Using Forwarding Rules Base On Payload Content



Photonic Band Gap



← 11140 nanometers →

Click the picture to zoom in (picture will appear in a new window)

1. Choose the color of light source.
Wavelength appears in nm

Violet (380 **nm)**

300 nm 980

Magnitude

\- 0 +

2. Choose particle size in nanometers

particle size is 200 **nm**

200 nm 380

3. Choose incident angle in degrees

Incident angle is 30 °

0 ° 45

Preview

1 **Frame # 13 , time is 39 fs** 15

4. Watch the animation

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Current Organizational Participants and Leads

- *ANSP, São Paulo, Luis Fernandez Lopez*
- *Applied Research Center for Computer Network at Skolkovo, Moscow, Ruslan Smeliansky*
- *Centro de Pesquisa e Desenvolvomento de Telabras, São Paulo, Marcos Rogerio Salvador*
- *Canadian Communications Research Centre, Ottawa, Scott Campbell**
- *Computer Network Information Center, Chinese Academy of Sciences, Beijing,* **Jungling Yu***
- *Duke University, Durham, Jeff Chase*
- *Electronic and Telecommunications Institute, Daejeon, Myung-Ki Shin*
- *HP Research Labs, Palo Alto, Rick McGeer**
- *International Center for Advanced Internet Research, Northwestern University, Chicago, Joe Mambretti, Jim Chen**
- *Korea Institute of Science and Technology Information, Daejeon, Dongkyun Kim*
- *National Center for High-Performance Computing of Taiwan, Tainan, Te-Lung Liu**
- *National Cheng-Kung University, Tainan, Chu-Sing Yang**

Current Participants

- *National Institute of Information and Communications Technology, Tokyo, Aki Nakao **
- *National Kao Hsiung University of Applied Science, Kaohsiung, Mon-Yen Lou**
- *NICTA, Australia, Max Ott*
- *Princeton University, Princeton, Andy Bavier*
- *Rede Nacional de Ensino e Pesquisa, Brazil, Michael Stanton*
- *Renaissance Computing Institute (RENCI), Chapel Hill, Ilia Baldine*
- *SARA, Amsterdam, Ronald van der Pol**
- *Technische Universitat Kaiserslautern, Kaiserslautern, Paul Muller**
- *University of Amsterdam, Cees de Laat*
- *University of Essex, Colchester, Martin Reed**
- *University of Tokyo, Tokyo, Aki Nakao **
- *University of Utah, Salt Lake City, Rob Ricci**

- *** Indicates Participants in the First Demonstrations**