Welcome to NANOG 64

Daniel Golding
Chair - NANOG Board of Directors
What makes a NANOG Conference Different

❖ Attendee Demographics
❖ Peer Reviewed Program
❖ The Difference between a Full NANOG Conference and NANOG on The Road
❖ Commitment to supporting New Operators
❖ College Immersion Program
  ➢ NANOG College Immersion Students
  ➢ Fellowships
❖ Vendor Neutrality
  ➢ Sponsorship - Premium and Individual Meeting Sponsor Support
Why NANOG and What to Expect at NANOG 64

- General Session Content
- Tracks
- Tutorials
- Lunch - Monday & Tuesday
- Social reminder for Monday night, BnG Tuesday, and Tuesday night Social
Welcome All!

- **Newcomers** - Approx. 374 attending their first NANOG Meeting
- **Members** - 223 of 718 total attending NANOG 64
- **Attendees** - 1162 - largest NANOG meeting
Thanks to our Host, Connectivity, Premium and Infrastructure Sponsors!
NANOG 64 Host Welcome!

Aaron Klink - Network Strategy Manager,
Netflix
Premium Sponsor
NANOG 64
Where is Dave?
The “Net” in Netflix
jobs.netflix.com
NANOG 64 Connectivity Welcome!

Mike Vogel
Director, Comcast Wholesale
Premium and Connectivity Sponsor
Mike Vogel
Director | Comcast Wholesale
NANOG 64 Connectivity Sponsor

METRO ETHERNET / DEDICATED INTERNET ACCESS
FIBER / CWDM / IPV4 / IPV6 / BGP
STANDARD BUSINESS CUSTOMER PROVISIONING
PROCESS FOLLOWED FOR INSTALLATION

NANOG 64 NETWORK
LAN / WI-FI
WESTIN ST. FRANCIS
SAN FRANCISCO

COMCAST REGIONAL
NETWORK
(CRAN – SF AS 33651)

COMCAST NATIONAL
NETWORK
(iBONE – AS 7922)

COMCAST BUSINESS
METRO ETHERNET

CORE ROUTER 529 BRYANT
PALO ALTO

CORE ROUTER 11 GREAT OAKS
SAN JOSE

COMCAST WHOLESALE

NANOG
### About Comcast

**Communications • Information • Entertainment**

<table>
<thead>
<tr>
<th>Cable Communications</th>
<th>Cable Networks</th>
<th>Broadcast</th>
<th>Film / TV</th>
<th>Parks</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>xfinity</td>
<td>NBC</td>
<td>NBC</td>
<td>Universal</td>
<td>Universal</td>
<td>Universal</td>
</tr>
<tr>
<td>Comcast Spotlight</td>
<td>cbc</td>
<td>universal</td>
<td>Universal</td>
<td>Universal</td>
<td>Universal</td>
</tr>
<tr>
<td>Comcast Business B4B</td>
<td>Bravo</td>
<td>Telephone</td>
<td>Universal</td>
<td>Universal</td>
<td>Universal</td>
</tr>
<tr>
<td>Comcast Wholesale</td>
<td>CNBC</td>
<td>mun2</td>
<td>Universal</td>
<td>Universal</td>
<td>Universal</td>
</tr>
<tr>
<td></td>
<td>Syfy</td>
<td>carnival</td>
<td>Universal</td>
<td>Universal</td>
<td>Universal</td>
</tr>
<tr>
<td></td>
<td>Oxygen</td>
<td>Blumhouse</td>
<td>Universal</td>
<td>Universal</td>
<td>Universal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FreeWheel</td>
</tr>
</tbody>
</table>

Beijing (2019)
Comcast News

- 2 Gbps Residential
- Live Streaming on X1
- Open Source Participation
- 4K/UHD Set-Top Box

Comcast and OpenStack: Engineering from Cloud to Couch

Comcast to Launch 4K Ultra High-Definition Set-Top Box
Universals their ‘M"
Monday, June 1 – Afternoon Break

Information Table and Entry for Wednesday Give Away

Enter to win…

NBCUniversal Gift Basket / Fandango gift cards

2:30 PM
NANOG 64 Connectivity Welcome!

Jack Waters, Chief Technical Officer, Level 3
NANOG 64 Connectivity Sponsor
NANOG 64 Agenda Opening!

Tony Tauber
Chair - NANOG Program Committee
Thank You to the Members of the Program Committee

- Jeff Bartig
- Christina Chu
- Philippe Couture
- Paul Ebersman
- Allison Feese-Strickland
- Greg Hankins
- Elisa Jasinska
- Anton (Tony) Kapela
- Manish Karir
- L. Sean Kennedy (Vice Chair)
- Randy Neals
- Matt Petach
- Michael Sinatra (Secretary)
- Tony Tauber (Chair)
- Krassi Tzvetanov
- John van Oppen
- Ryan Wooley
Program Notes

- New PC Tool Agenda/Guidebook Automation
- Grand Ballroom sessions will be webcast/archived
  - See Agenda notation
- Other sessions video recorded where possible
- Two-part Tutorial on Tuesday (Network Coding 101)
- Peering Track (Separate from Peering Personals)
Highlights and Mini-Themes

- Regulatory
- Automation
- IPv6
- New Architectures and Technologies
- Measurement
- Security
- S**
General Reminders

- Breaks and Espresso Bar
  - Outside of General Session
- Breakfast and Lunch
  - Monday and Tuesday - Overflow on 32nd Floor
- Q&A and Microphone Guidelines
  - Introduce yourself – Name and Affiliation
  - Questions brief and to the point – not statements
  - Be courteous and respectful
Surveys

- Daily “Presentation Survey” Giveaway
  - Take online via the web or guidebook
- Awards
  - 1 Tuesday
    - for Monday Surveys
  - 1 Wednesday Morning
    - for Tuesday Surveys
  - 1 Wednesday Afternoon
    - for Wednesday Morning Surveys
Introduction of First Speaker

Chris Witteman, California Public Utilities Commission