NEND-Report Update
The Lossless Network for Data Centers

Paul Congdon

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IEEE 802 Plenary, Rosemont
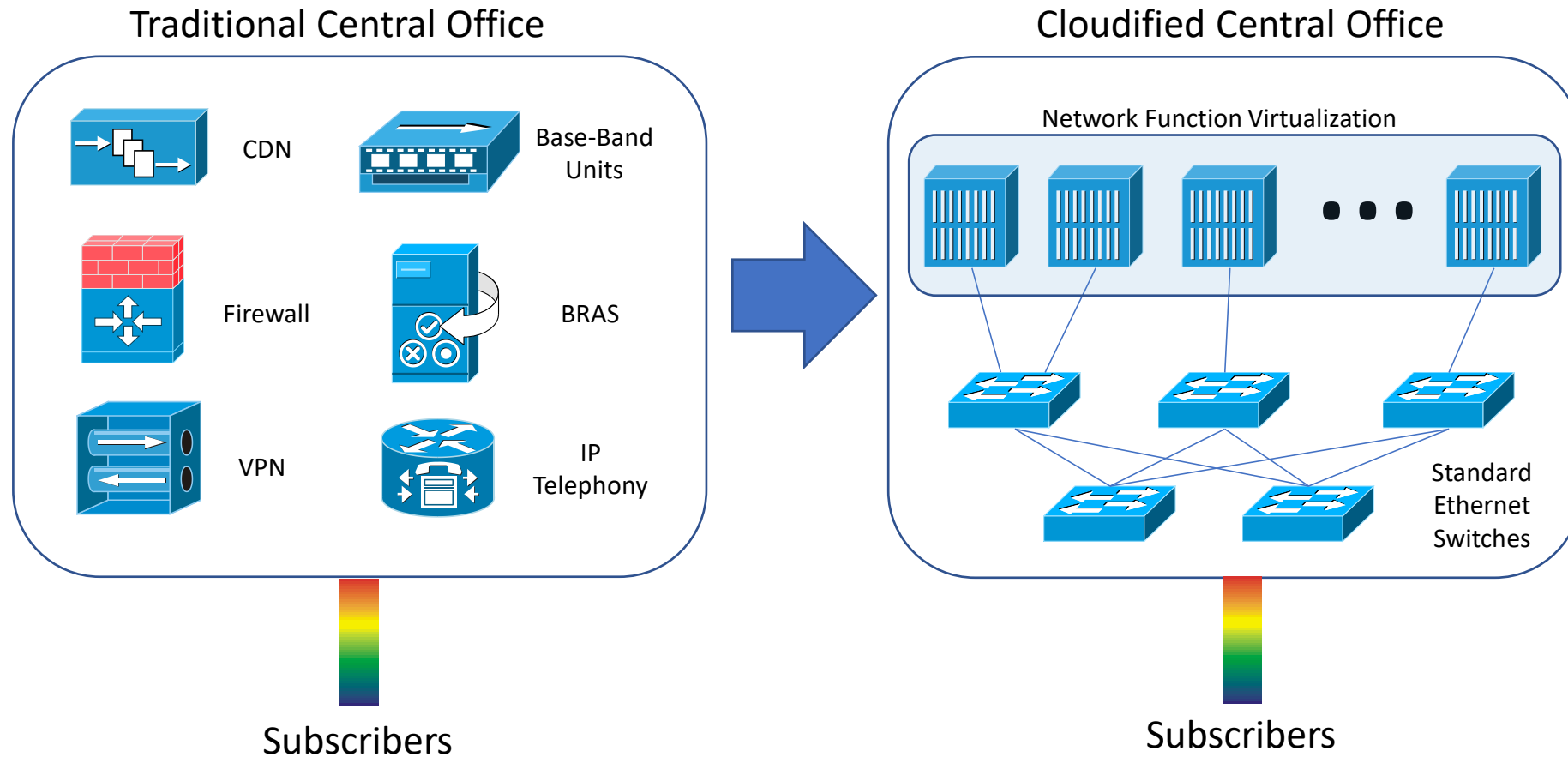
Status

- Latest Version
  - https://mentor.ieee.org/802.1/dcn/18/1-18-0007-02-ICne-draft-report-lossless-data-center-networks.pdf
- Updates since last NEND meeting – November 2017
  - Formatted to use IEEE Template
  - Inclusion of Contributors/Supporters
  - New clause on Standards Considerations
  - New Use Case – Cloudification of Central Office
  - Other Additional content from reviewers/contributors
- Phone conference document reviews
- Document ready to follow NEND acceptance/approval process.

Report High-Level Outline

- Background
  - Forces driving change – our digital lives
  - Trends in the Data Center – common thread - Parrelism
    - OLDI (context search)
    - Deep Learning (AI)
    - NVMe over Fabrics (storage)
    - **New - Cloudification of the Central Office (CO)**
- Short comings of today's Data Centers
  - Current design
  - Issues – ECMP collisions, congestion control loops, incast, head-of-line blocking
- Possible Future Technologies
  - Virtual input queuing
  - Dynamic Virtual Lanes – Congestion Isolation (proposed PAR)
  - Load-Aware Packet Spraying
  - Push-and-Pull Hybrid Scheduling
- **New - Standardization Considerations**
  - Scope for IEEE and IETF Standards
  - Relationship between IEEE and IETF
  - Relevance of future technology to SDO

New Use Case: Cloudification of the Central Office

Traditional Central Office

CDN

Base-Band Units

Firewall

BRAS

VPN

IP Telephony

Subscribers

Cloudified Central Office

Network Function Virtualization

Standard Ethernet Switches

Subscribers

Growing Contributors/Supporters

Name	Affiliation	Email
Feng Gao	Baidu	gaofeng04@baidu.com
Gu Rong	China Mobile	gurong@chinamobile.com
Jose Duato	Polytechnic University of Valencia	jduato@disca.upv.es
Liang Guo	CAICT	guoliang1@caict.ac.cn
Jie Li	CAICT	lijie1@caict.ac.cn
Jianglong Wang	China Telecom	wangjl1.bri@chinatelecom.cn
Yolanda Yu	Huawei	yolanda.yu@huawei.com