Streamline The Internet

Presentation to

TWNOG 5

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AYChen@Avinta.com

Avinta Communications, Inc.
142 N. Milpitas Blvd., #148, Milpitas, CA 95035-4401 U.S.A.
Tel: +1 (408) 942-1485 Web: www.Avinta.com

Outline

A. Resources Hidden in Plain Sight
B. Simple Activation
C. Utilize Existing Architecture
D. Tethering Private Network
E. Paralleling Overlay Network
F. Summary

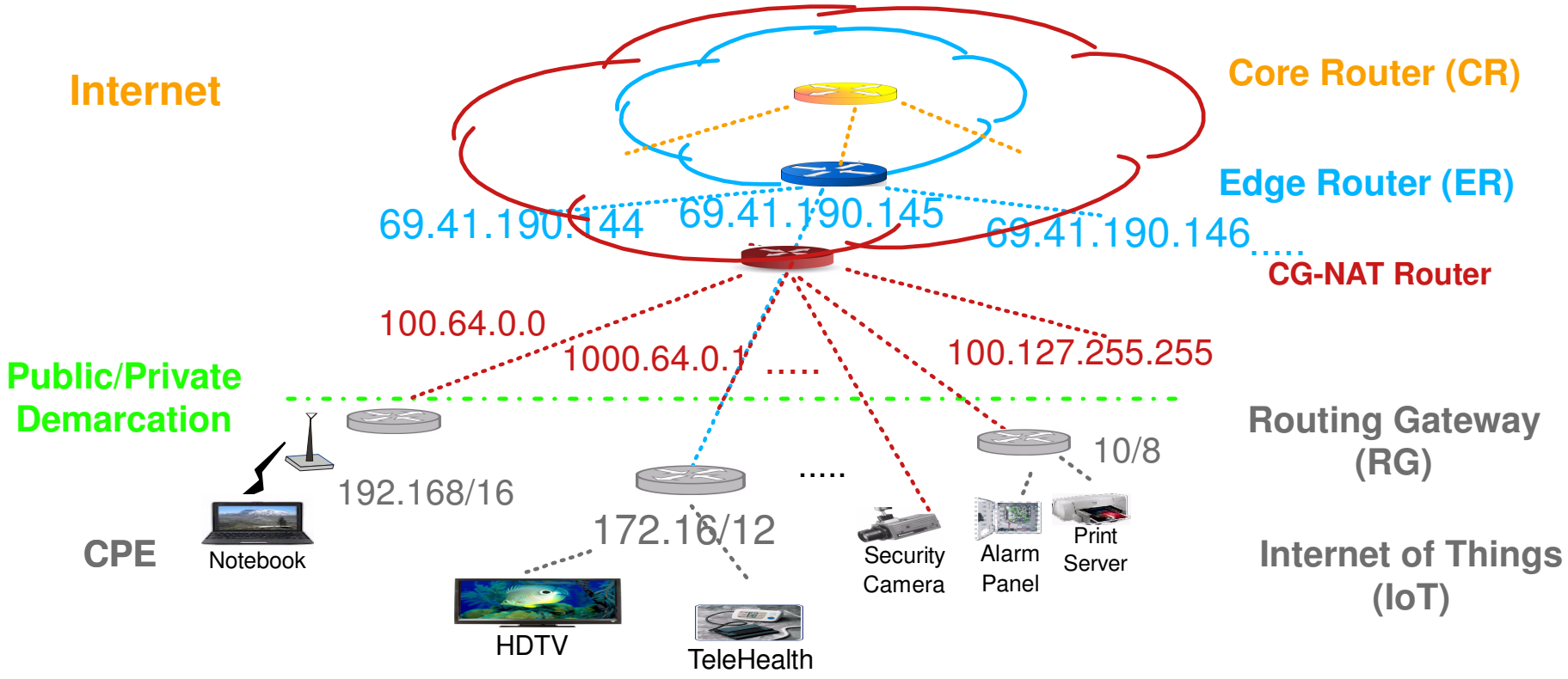
A.-a Resources Hidden in Plain Sight

- Reserved for "Future use" since 1981-09
- Not routable - neither publicly nor privately
- Regarded by most as "forbidden zone"
- Used by many unannounced projects
- Not impacting networks nor IoTs

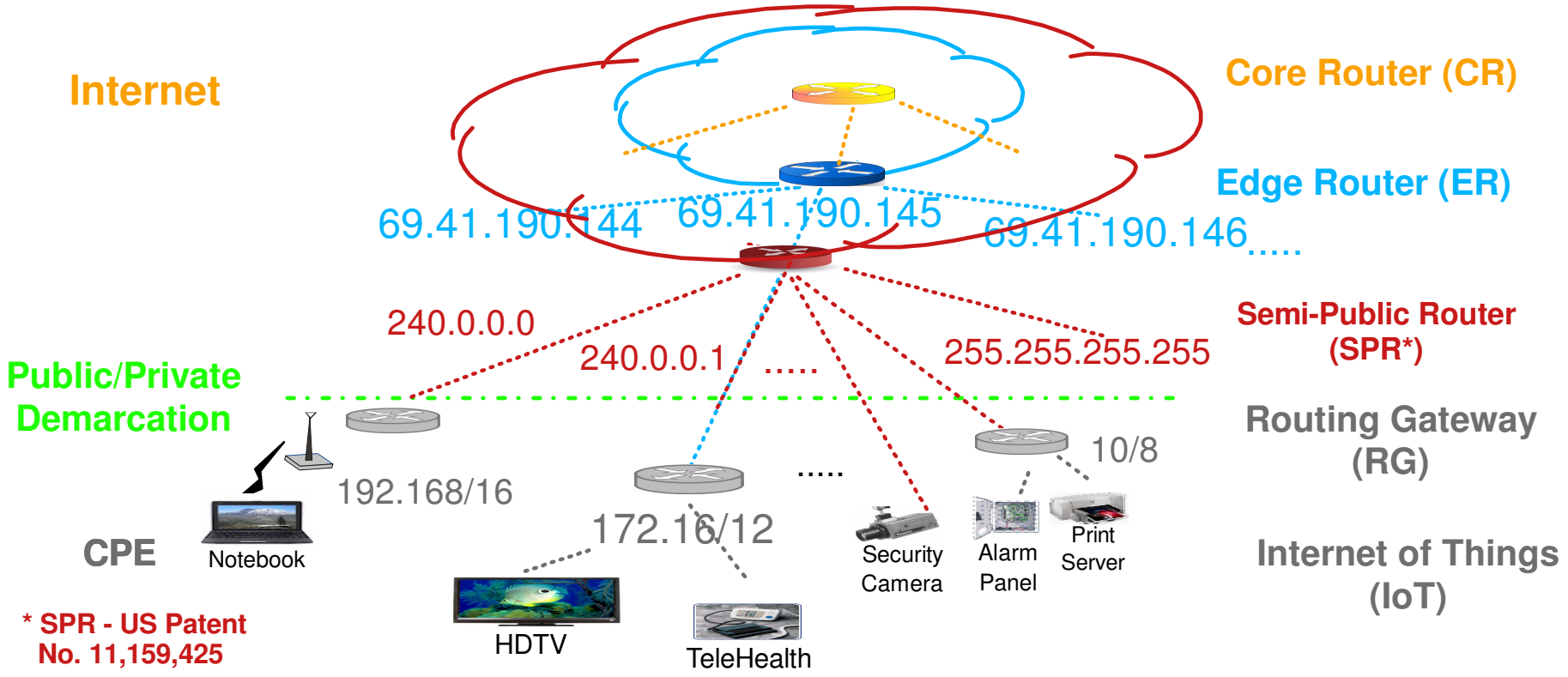
A.-b Resources Hidden in Plain Sight

- **Offers the potential of multiplying each current IPv4 public address by 256M fold**
- **An APNIC IETF Draft in 2008 proposed to redesignate 240/4 as Unicast, but limited to private use**

CG-NAT (Common Practice)



SPR (Proposed)



B.-a Simple Activation

- **Enable the use of the 240/4 netblock**
  - ***Disabling*** **program codes that have been *disabling* the use of the 240/4**
- **Use the 240/4 address as Semi-Public Unicast address**

B.-b Simple Activation

- **Simplify the 240/4 netblock administration**
  - **Static address assignment**
  - **Hierarchical network structure**
- **Deterministic addressing supports hierarchical and mesh routing**

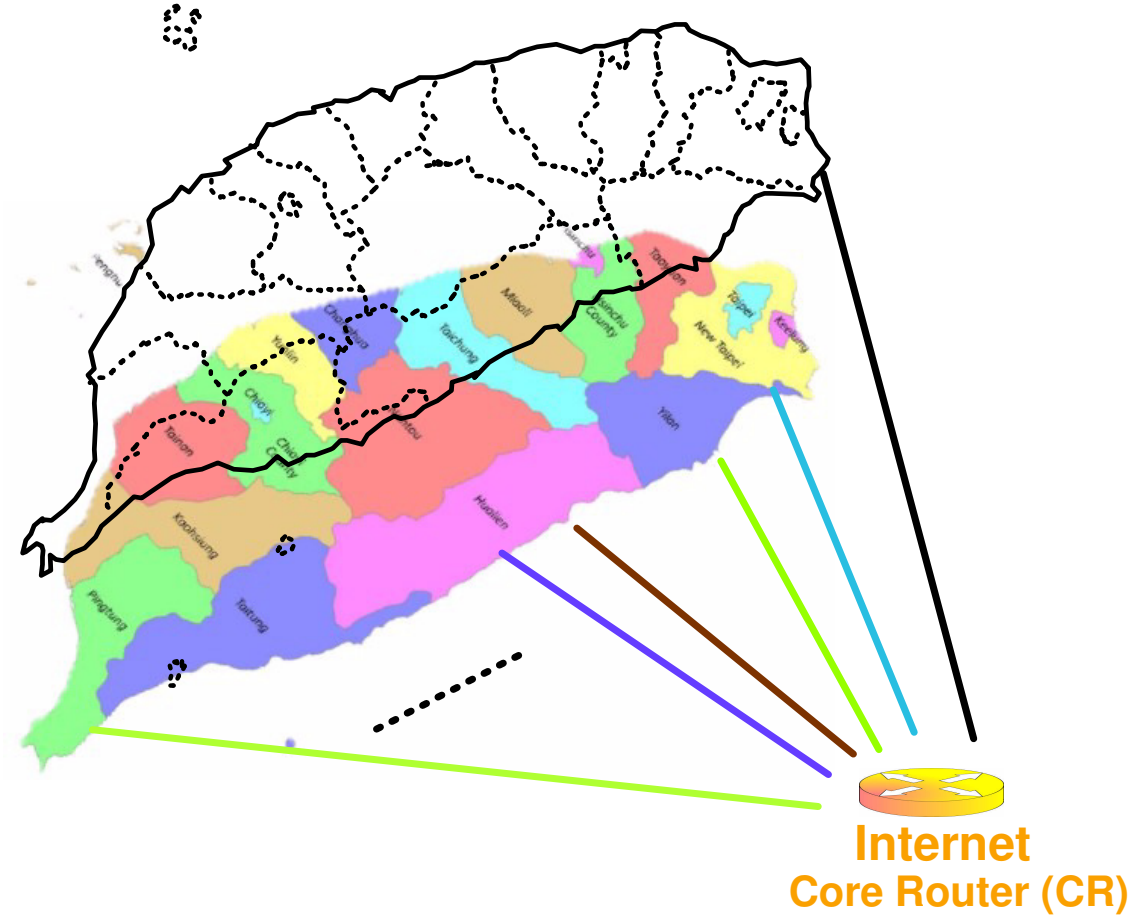
C.-a Utilize Existing Architecture

- **Apply 240/4 to CG-NAT for establishing a new set of router (SPR) between ER (Edge Router) and RG (Routing / Residential Gateway)**

C.-b Utilize Existing Architecture

- **Enhance CG-NAT routers to use both 100.64/10 and 240/4 netblocks**
- **Address pool large enough for static assignment in each practical RAN (Regional Area Network)**

D. Tethering Private Network



E. Overlay Network to The Internet

RANs form a Sub-Internet

Parallel to the Internet core

The Centralized Internet

- **DNS function performed in datacenters, direct routing within a CG-NAT**
- **Conventional AS and BGP functions centralized to CDN**
- **With dynamic master-slave addressing, individual has no identity to control activities over the Internet**

Decentralize The Internet

- RANs form an overlay network on existing Internet
- No router service required within a RAN
- Enable direct peer communication
- End user with static identity initiates and manages activities at will

Progressive Transition

- **Create RAN for peer communications (eMail, file sharing, video conference, etc.)**
- **CDN continues delivering content (video streaming, group game, etc.)**
- **CG-NAT may assume 240/4 addresses to release 100.64/10 netblock**
- **Merge the two to reunify the Internet**

F.-a Summary

- **Address expansion via 240/4 netblock**
- **Multiply each IPv4 address by 256M fold**
- **Network operation discipline - Static and Hierarchical**
- **Inherent GeoLocation property for stronger CyberSecurity**

F.-b Summary

- **Deployment Configuration**

  Autonomous RANs -

  Tethering off existing Internet

- **Enhanced Architecture**

  Overlay Sub-Internet -

  Arm's length from existing Internet

F.-c Summary

- End-To-End connectivity within a RAN
- for peer messaging (Data & Video)
- CDN for entertainment (Streaming & Game)
- Extendable to worldwide (via RFC791)
- Test beds for new Internet services
- Improve security, Reduce cost and expense
- All start from asking for a minor program code simplification

References

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B. The rise and rise of CDN

https://www.youtube.com/watch?v=gxO73fH0VqM

C. Using 240/4 Unannounced

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D. Unicast Use of the Formerly Reserved 240/4

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E. RAN Building Blocks

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F. Overview

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Questions?
Comments?
Next Step?
Thank You!

AYChen@Avinta.com
Avinta Communications, Inc.
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Tel: +1 (408) 942-1485 WebSite: www.Avinta.com