

High Availability再考

- “Do the things right” and “ do the right things” -

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Agenda

総論

- “Do the things right” and “Do the right things”

最近のArchitecture Trend

- Cloud Everywhere !
- Mobility Everywhere !

ISSU実装の実態

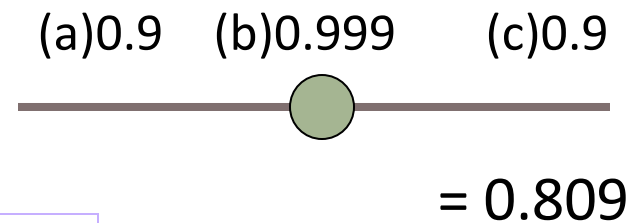
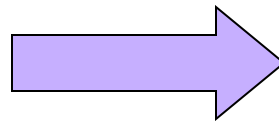
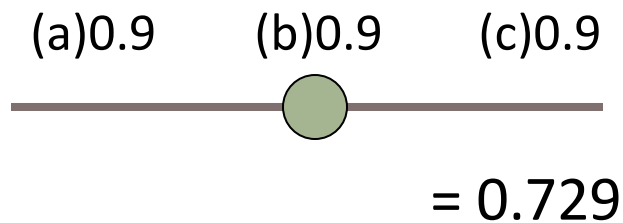
- 動作概要
- 悩ましさ

まとめ

総論

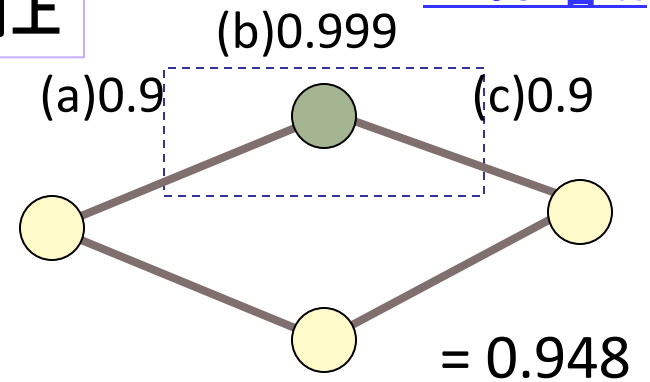
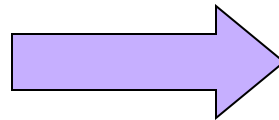
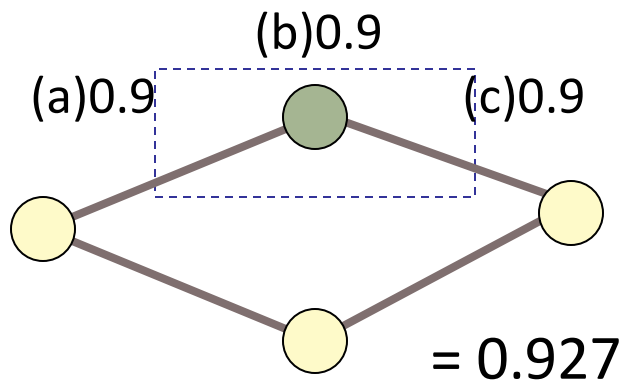
“Do the things right” – 所与のことを正しく行う

“Do the right things” – 正しいことを行う



(b)の稼働率を
0.9->0.999に向上

11% 増 !!

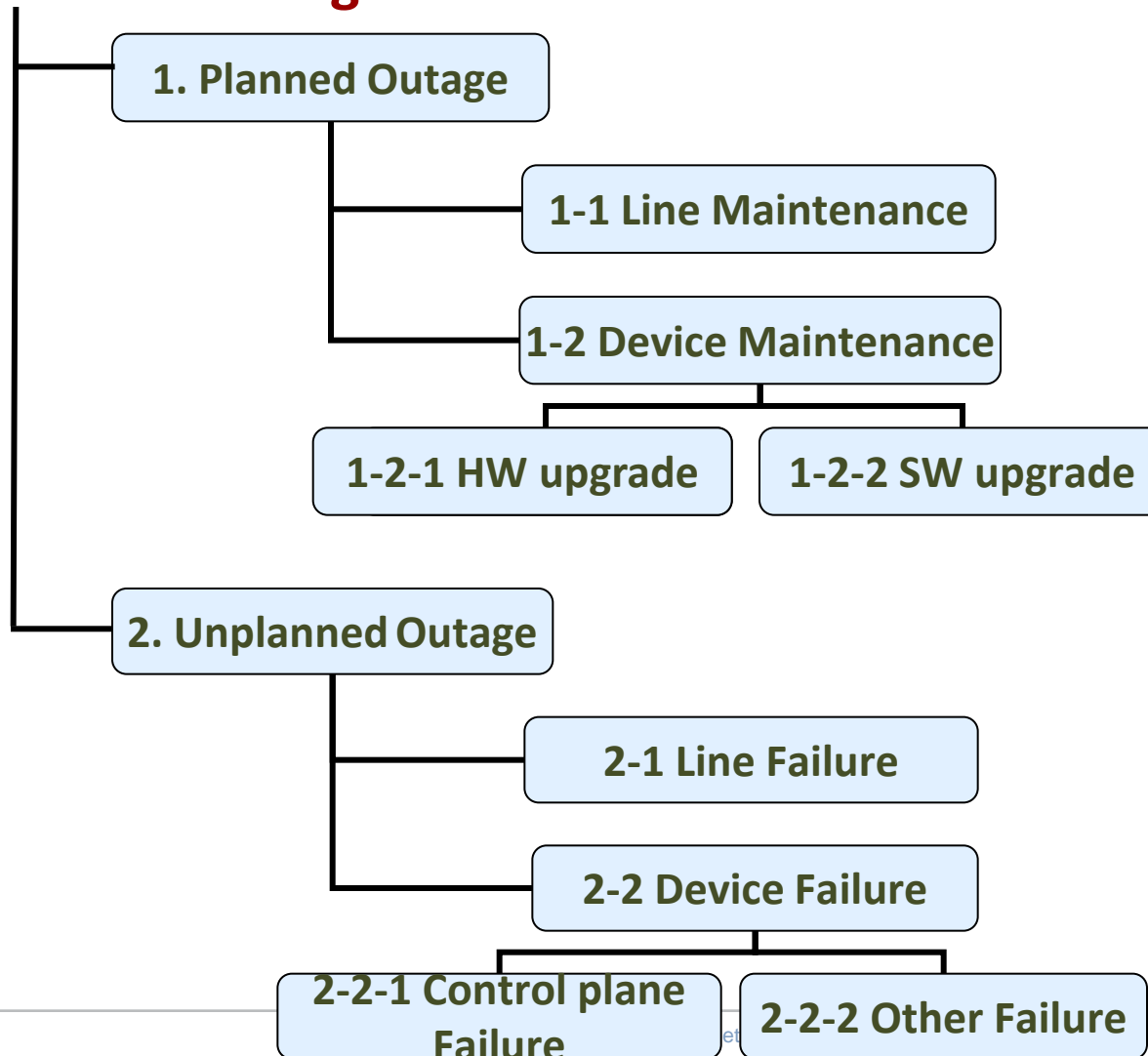


Architecture Matters !!

2% 増

総論 - Network Outage Taxonomy

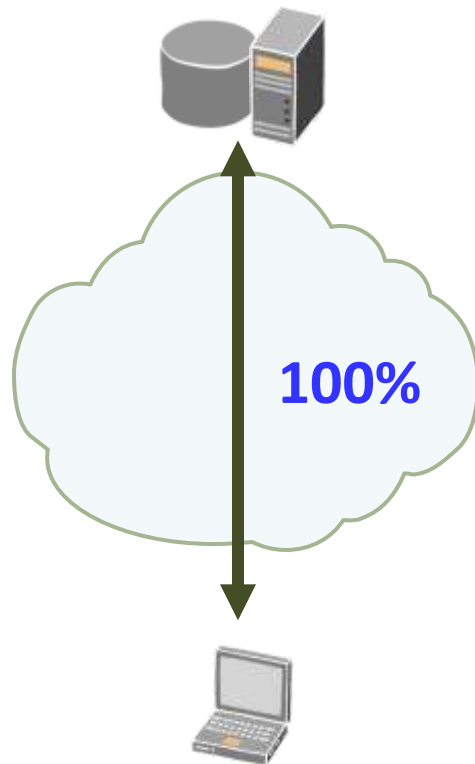
Network Outage



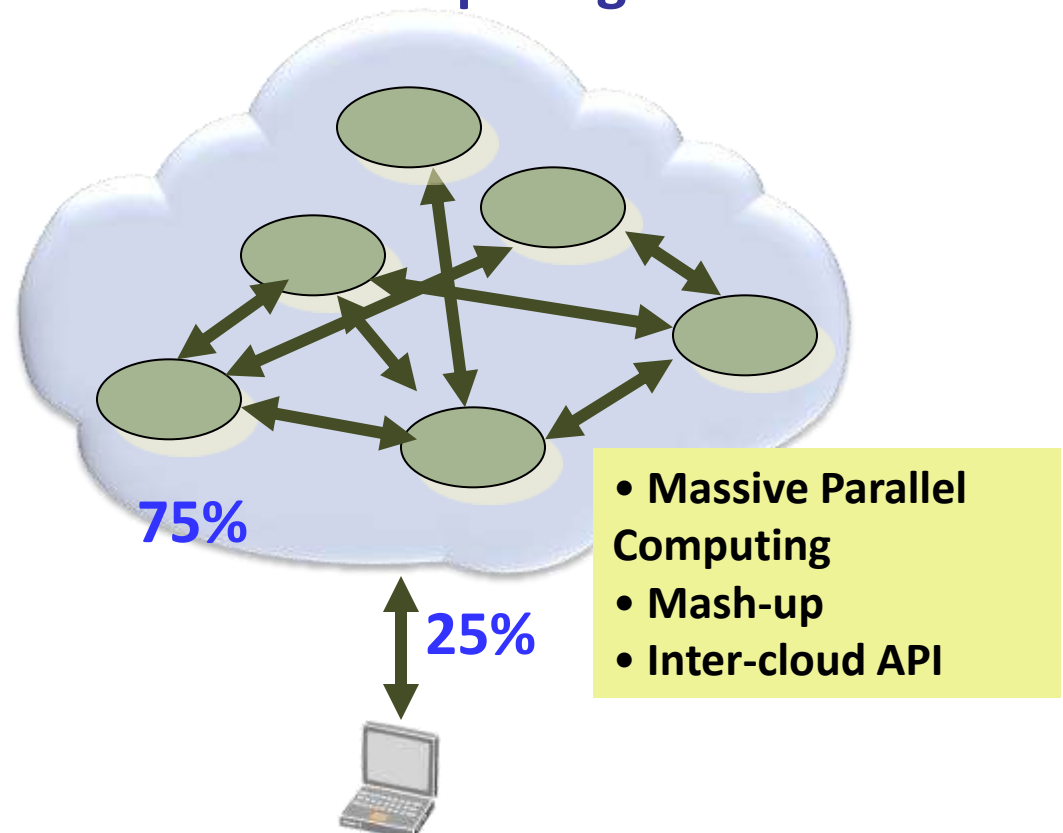
最近のArchitecture Trend

Cloud Everywhere!!

Client/Server Computing



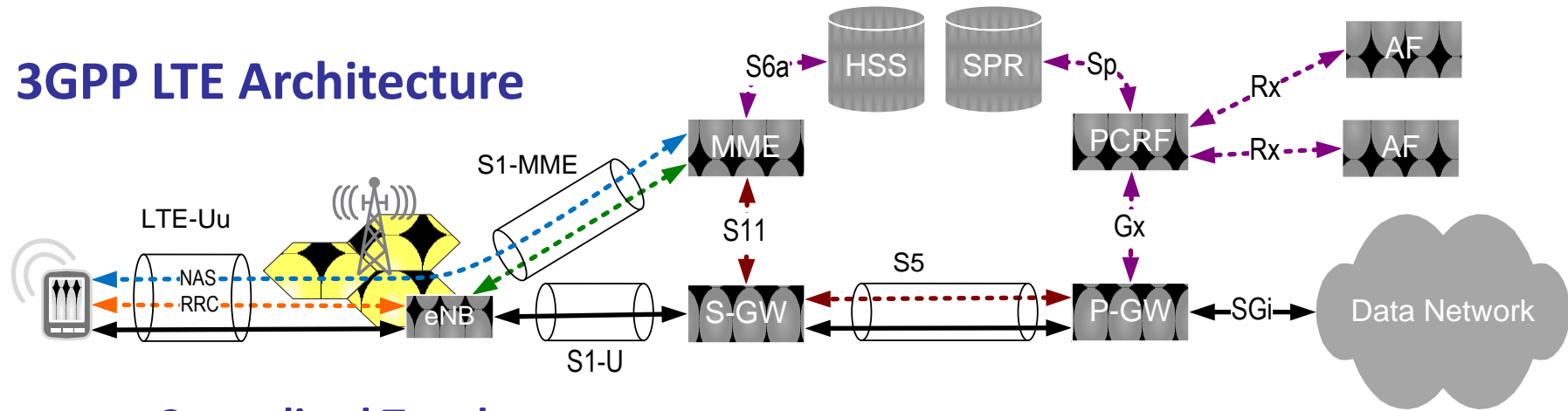
Cloud Computing



最近のArchitecture Trend

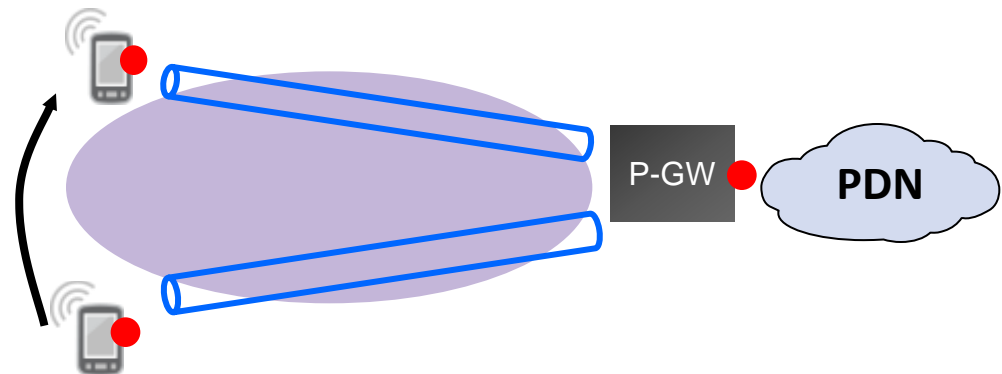
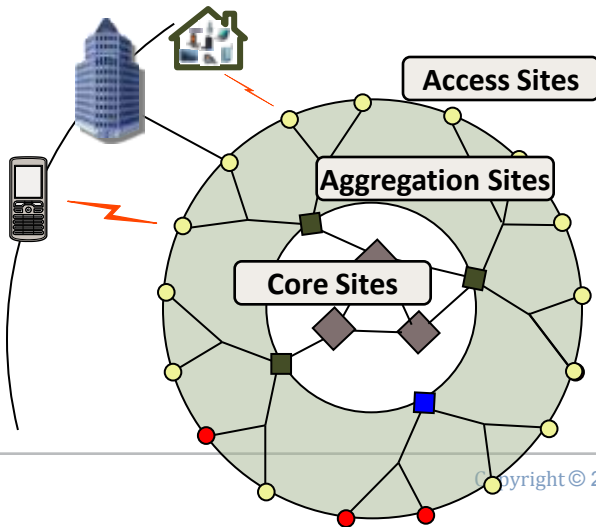
Mobility Everywhere!!

3GPP LTE Architecture



3GPP TS 23.402 V10.0.0 (2010-06)

Centralized Topology



ISSU動作概要 (1/3)

ISSU

= { NSR + controlled GRES + preserved data update }

NSR :

Protocol毎のNon Stop Routing機能

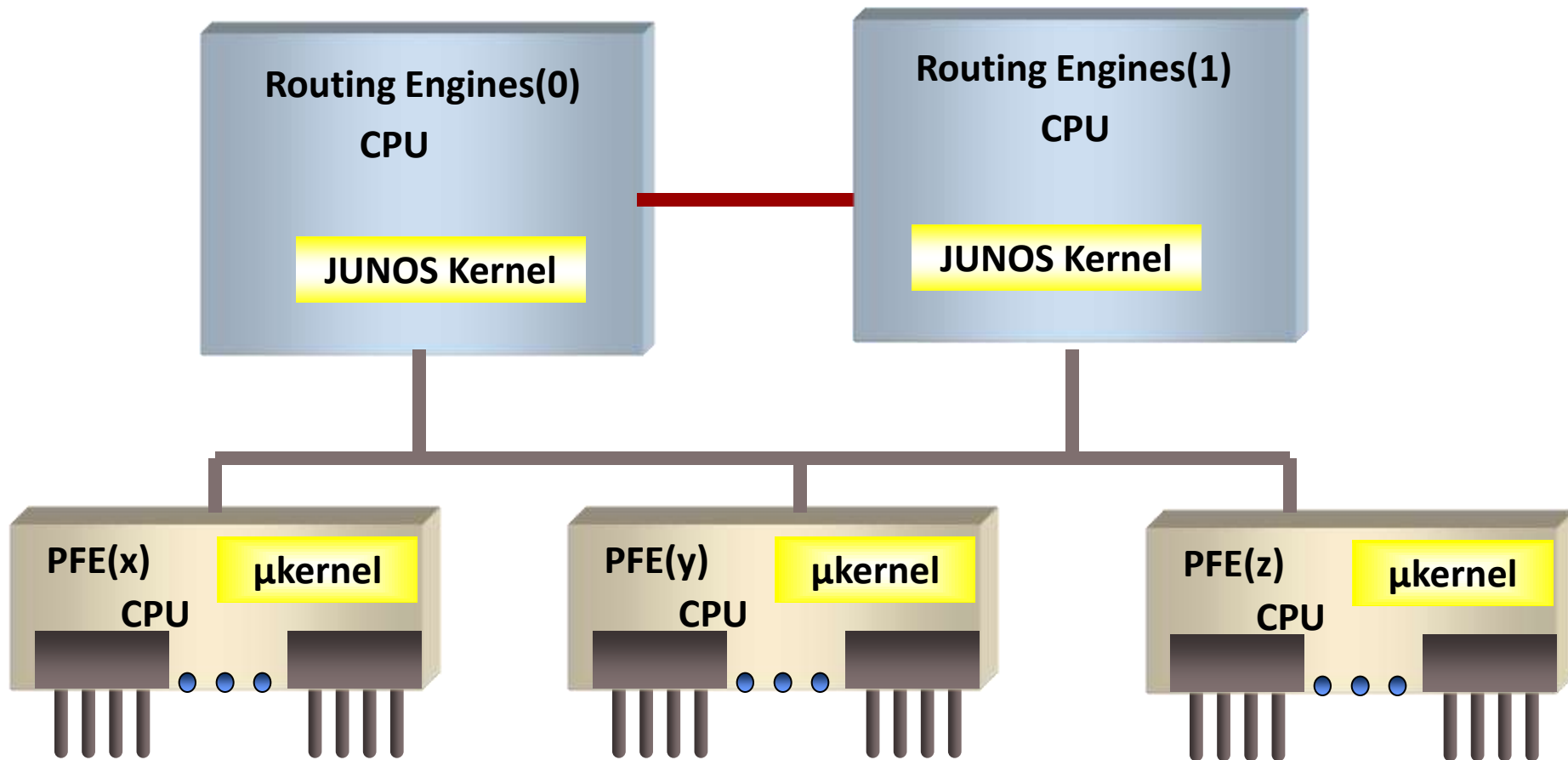
Controlled GRES :

制御された、Graceful RE (Routing Engine) Switchover
keepalive intervalの調整

Preserved Data Update :

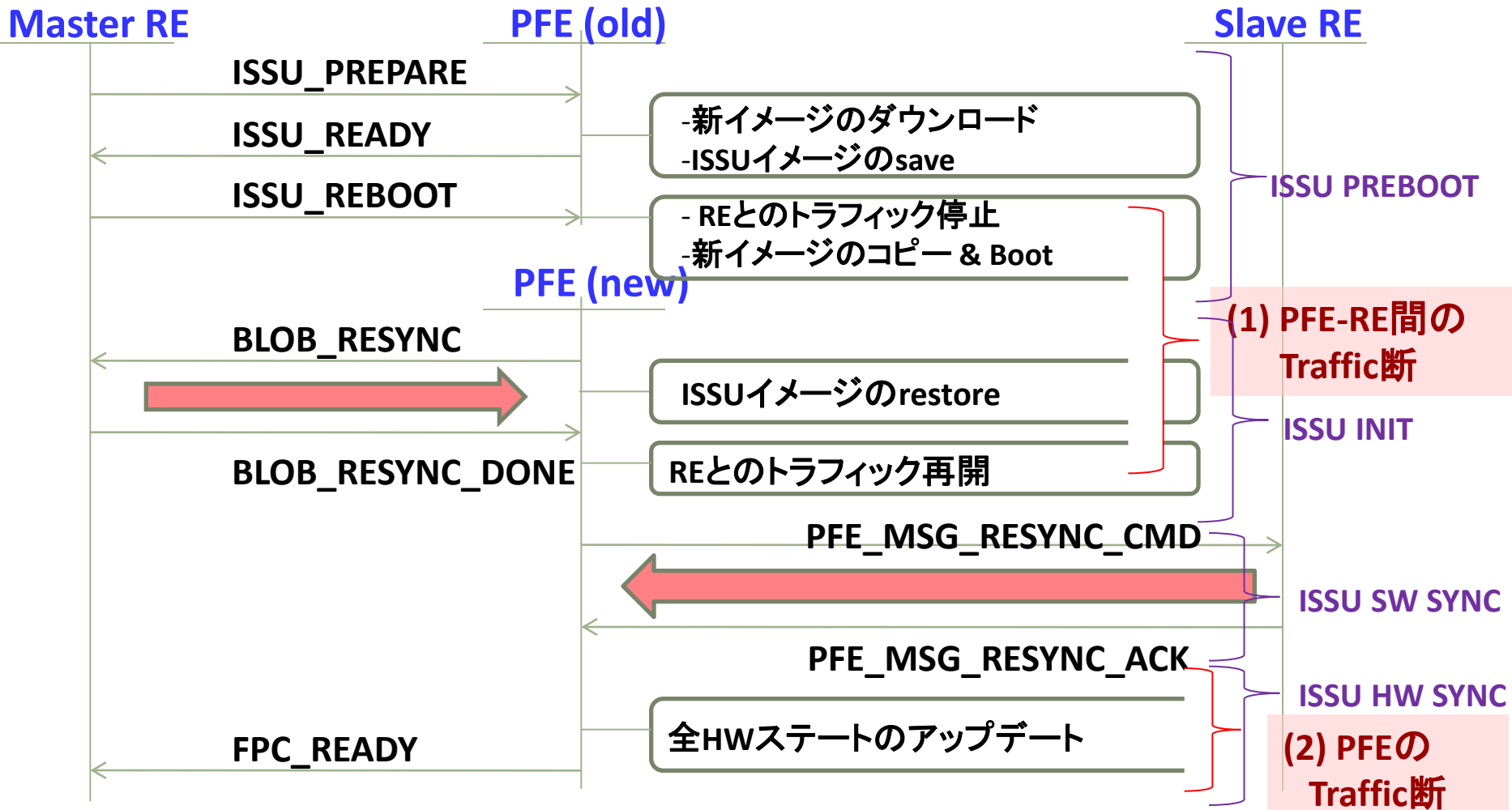
(protocol data以外の)保持されたデータのアップデート

ISSU動作概要 (2/3)



典型的なルータアーキテクチャ: Forwarding PlaneはNon-Redundant

ISSU動作概要 (3/3)



ISSU 悩ましさ

Protocol毎の対応必要 (=殆どはNSRの問題)

Protocol外の動的データの保証?!

- **Subscriber Management Data**

Version Compatibility Verification

- **柔軟性への制約と検証負荷増大**

Traffic断を完全に無くすことはできない

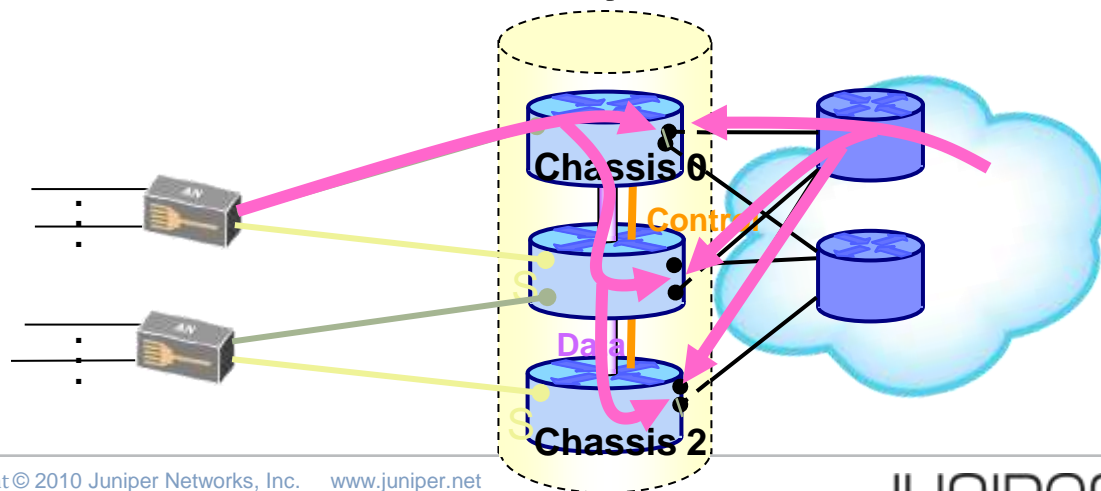
- **Forwarding Planeも冗長化必要?**

まとめ

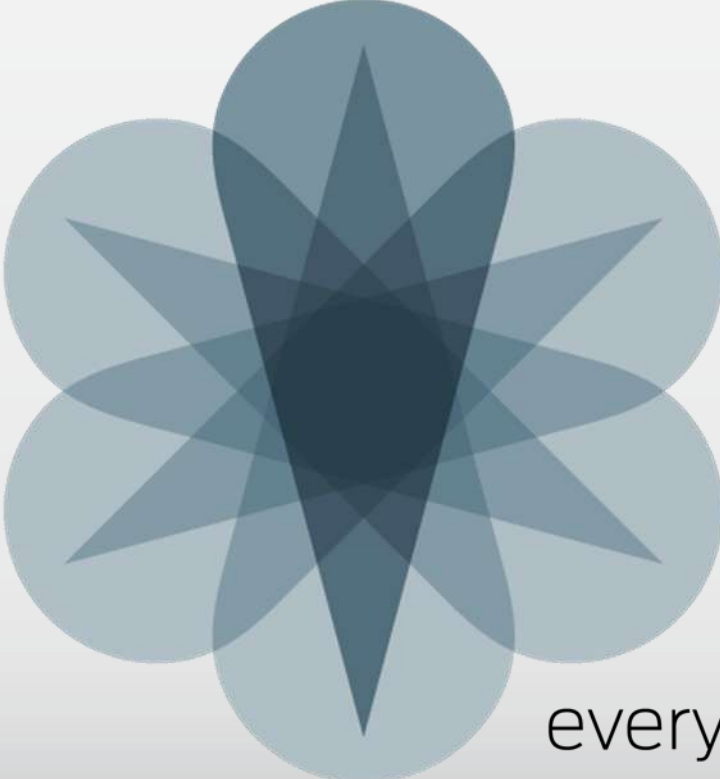
“What is the right things?!”

- 前提や要件は変化する
- 技術も変化する
 - Cloud (= Massive Parallel Computing + Mash Up)
 - Mobility (= Centralized Architecture + Tunnel, Tunnel, Tunnel !!)
 - Virtual Chassis, Inter Chassis redundancy

ISSUって
必要?



Thank you !!



everywhere