

XFLAG™ -Network Supporting Extraordinary Adventure-

Jul. 7, 2016

XFLAG Studio
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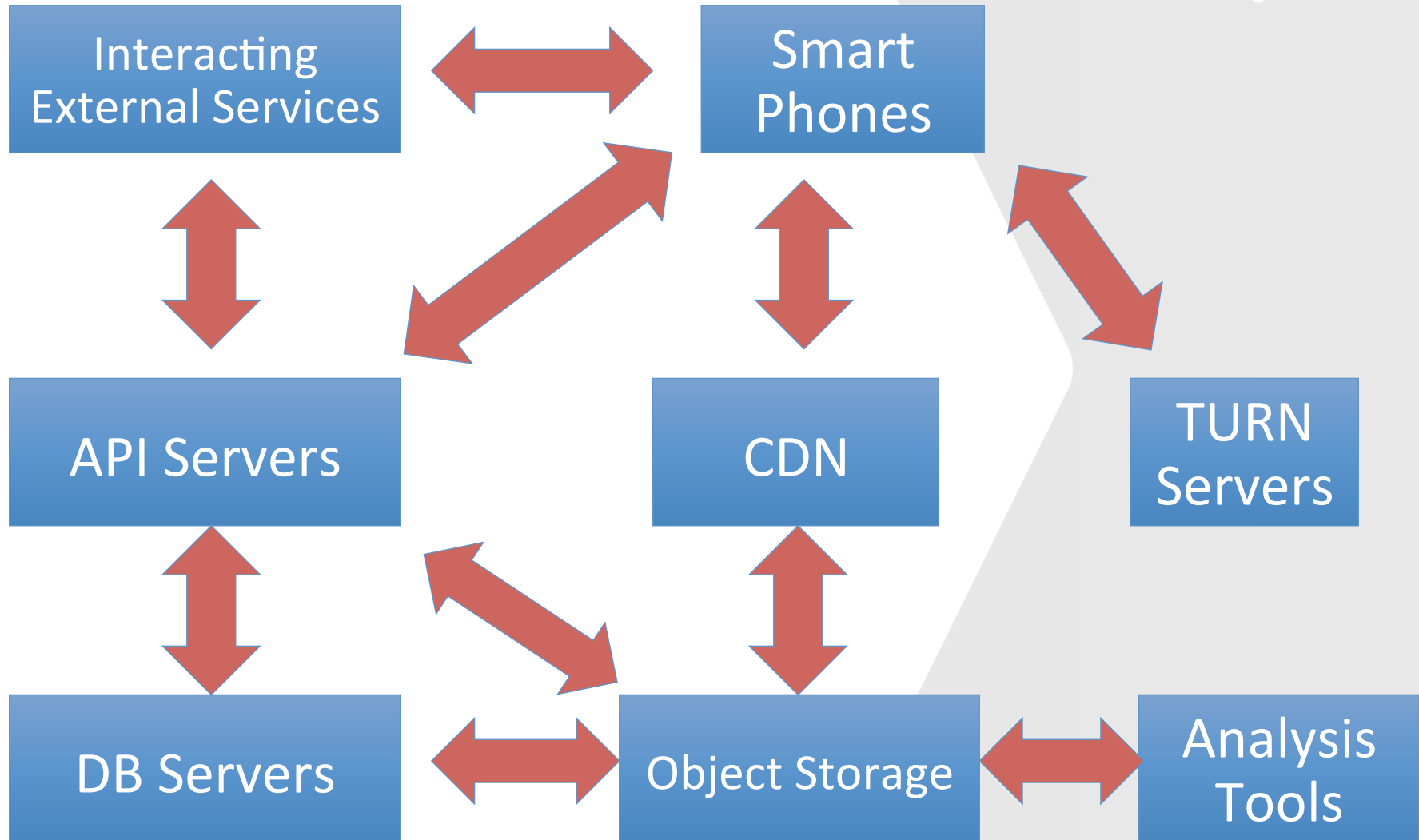


Today's Agenda

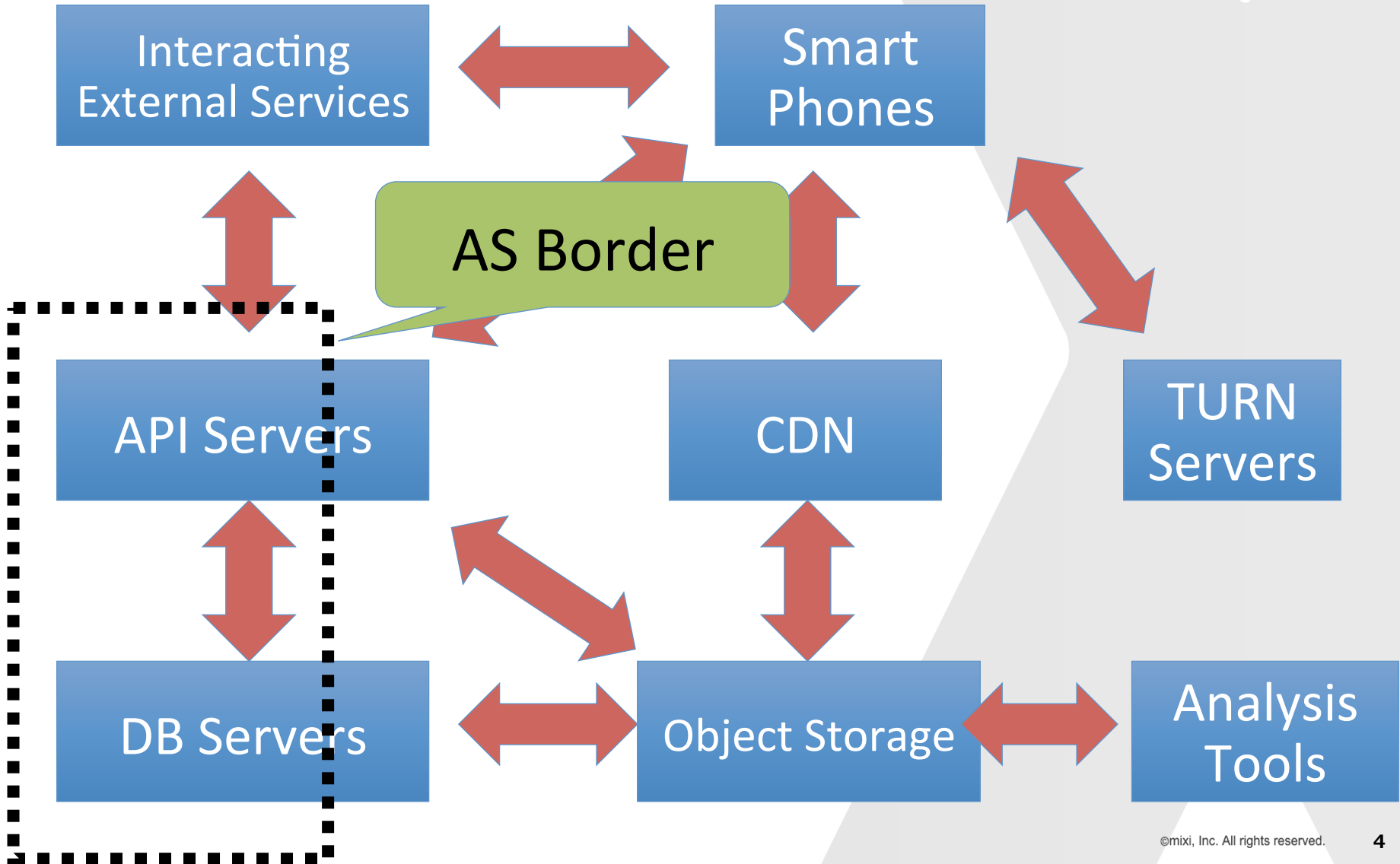
Application and it's traffic

Requests for IaaS Networks

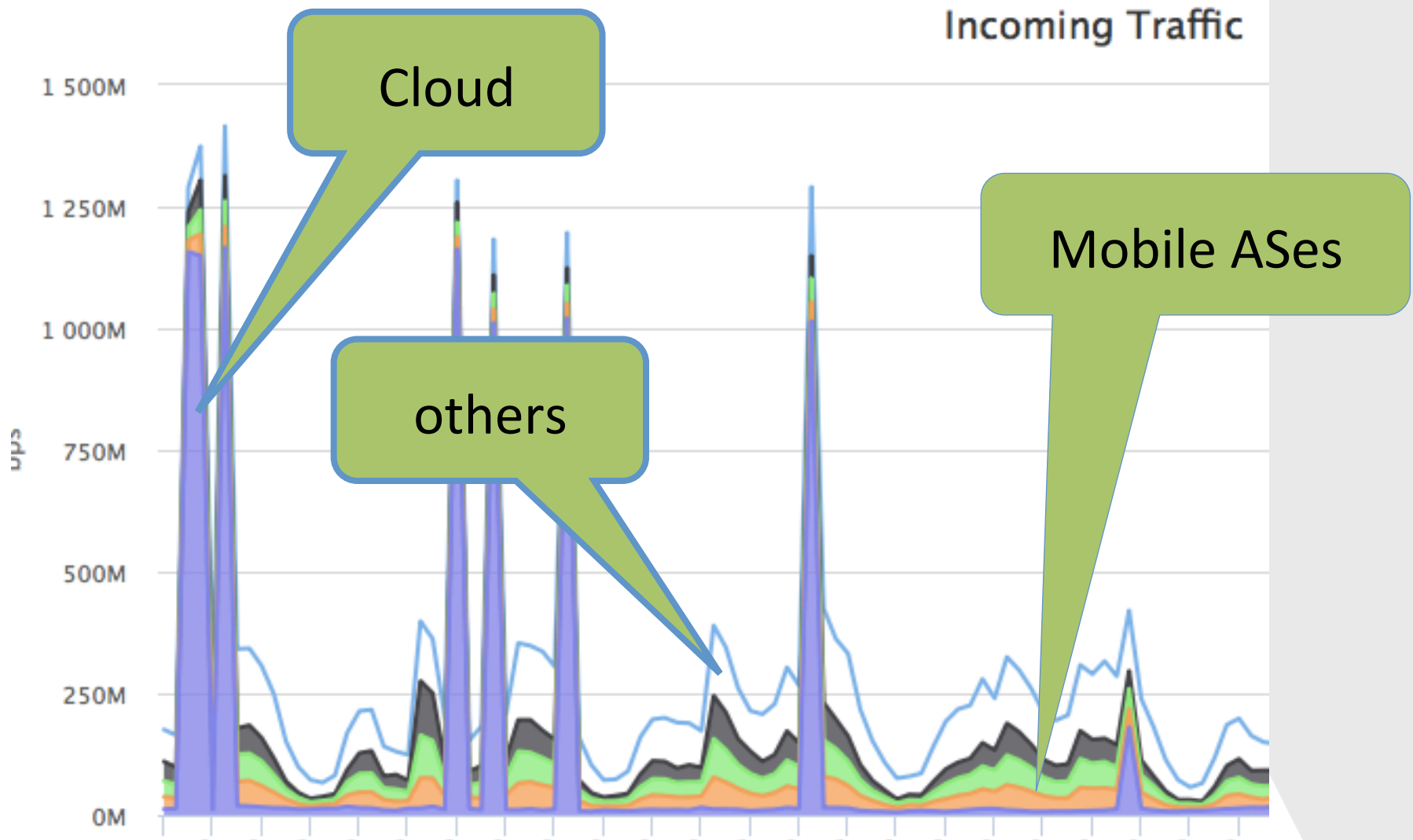
Various Communication



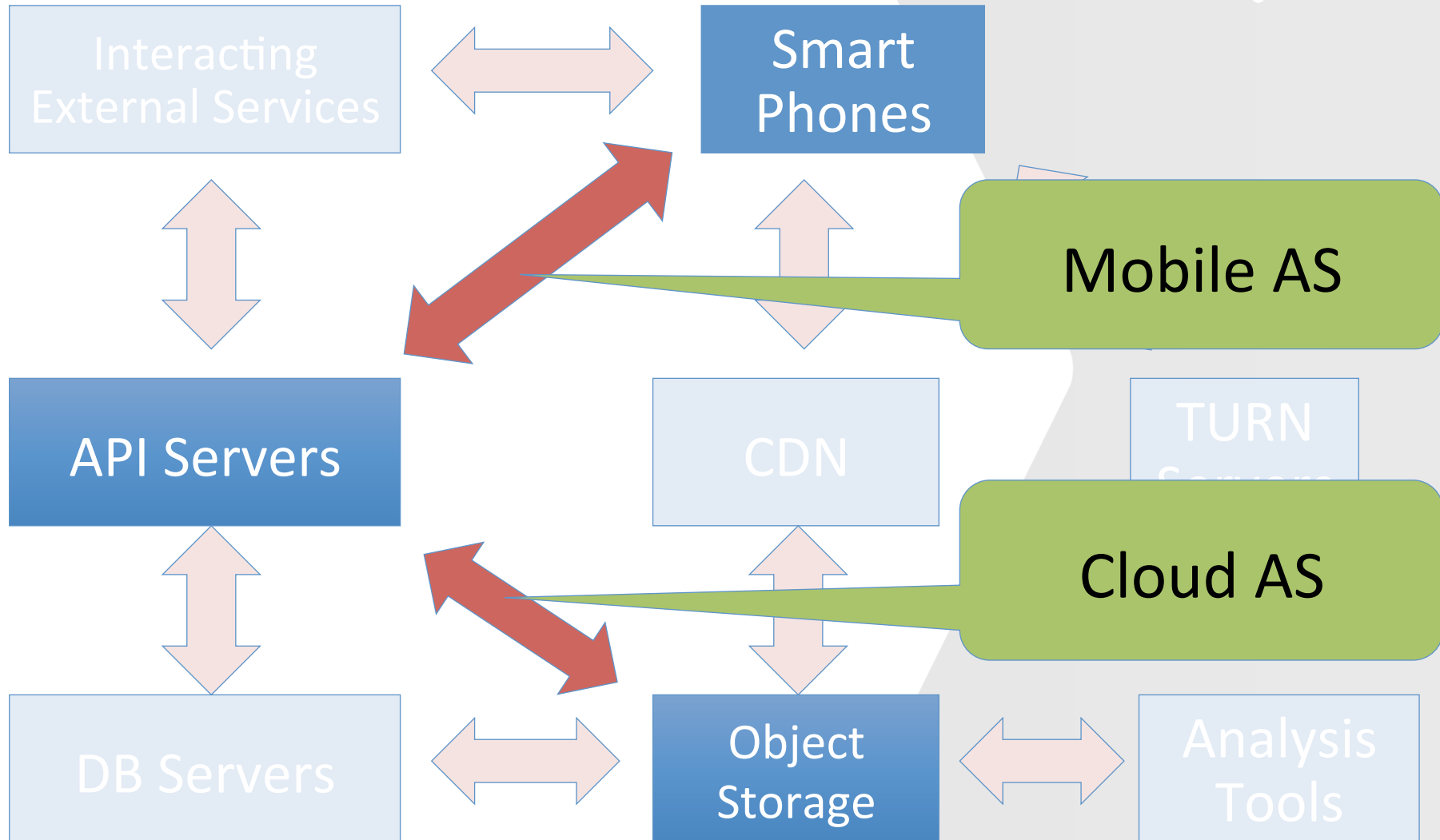
AS Border is around Here



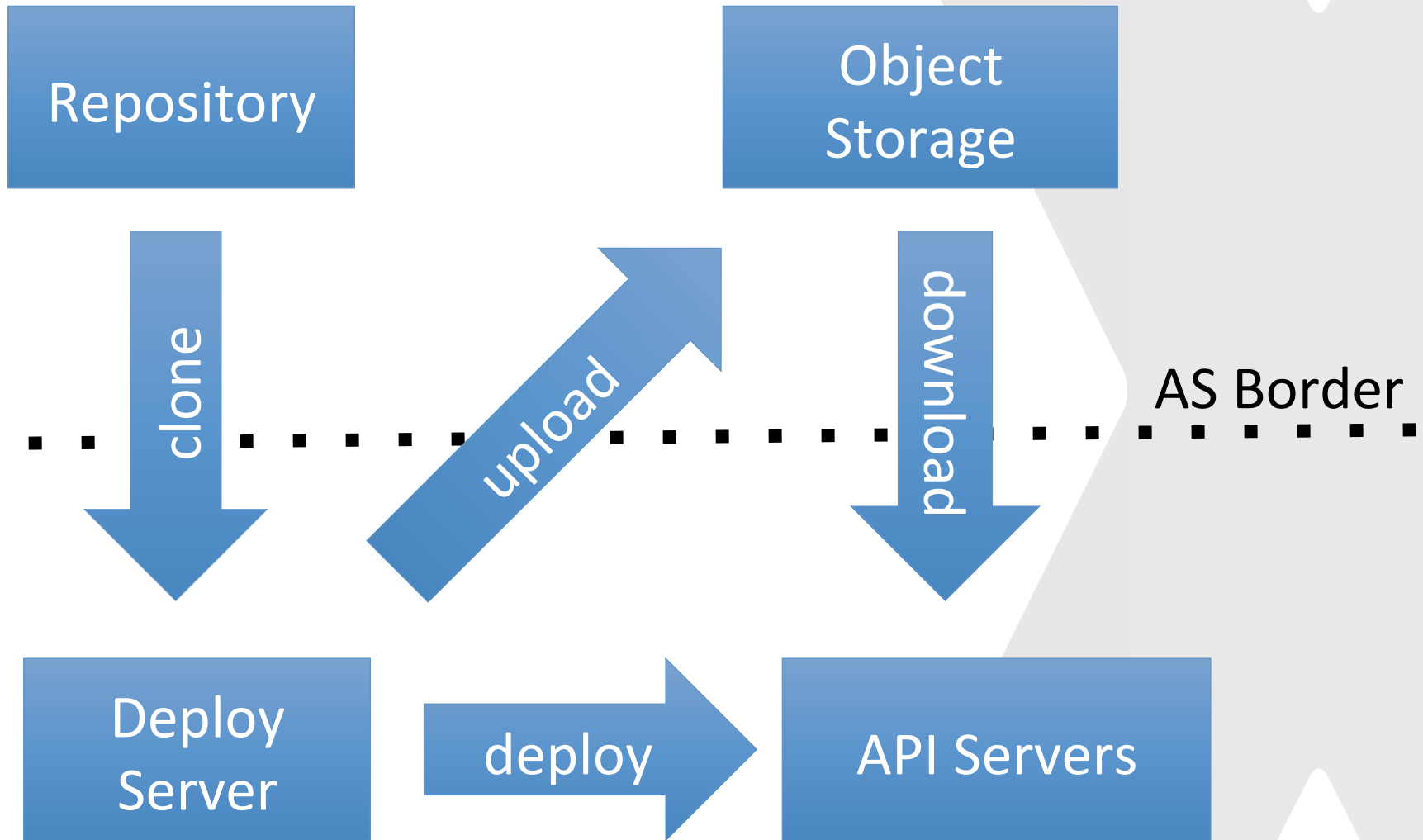
Internet Traffic – Incoming



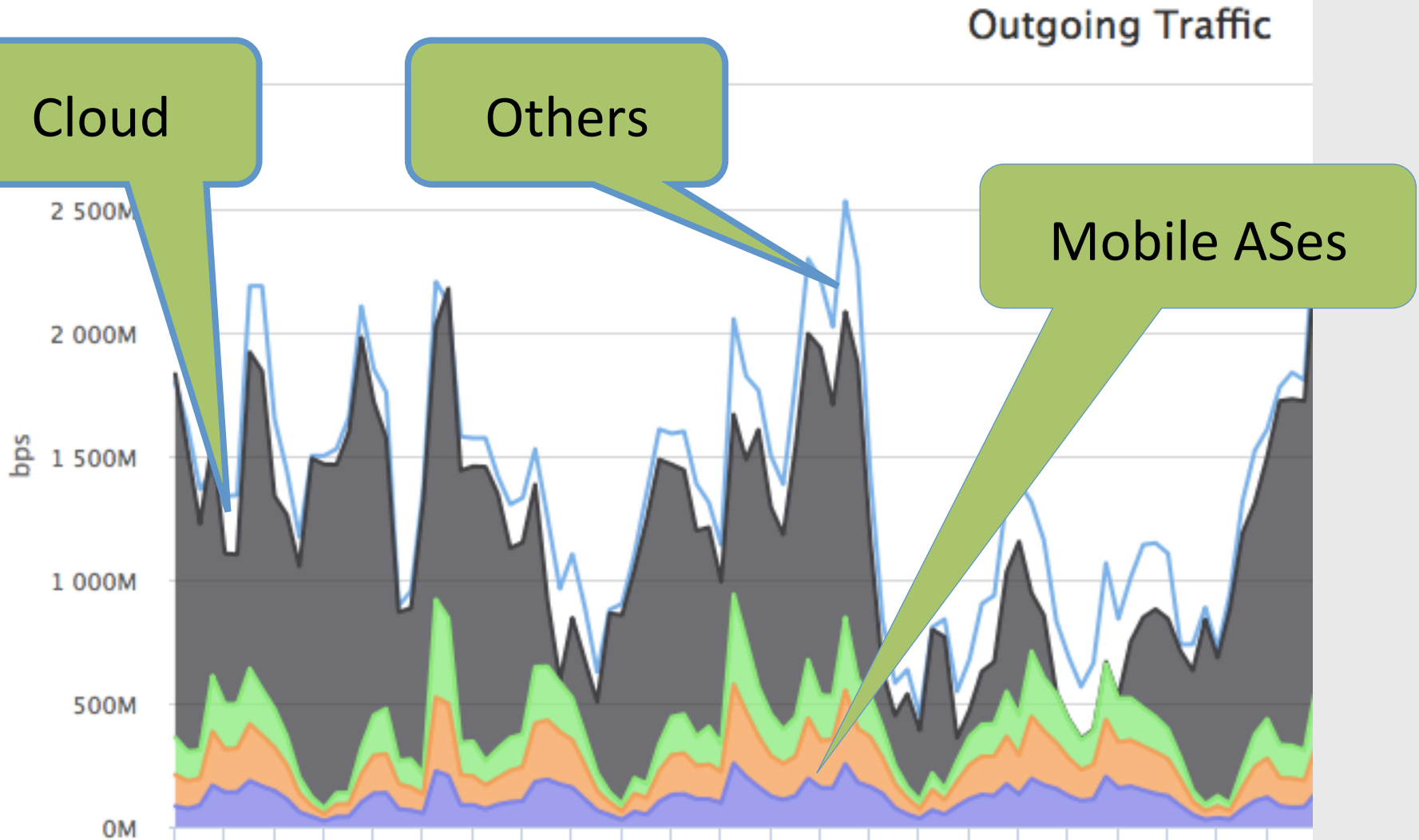
The Dominant in Incoming Traffic



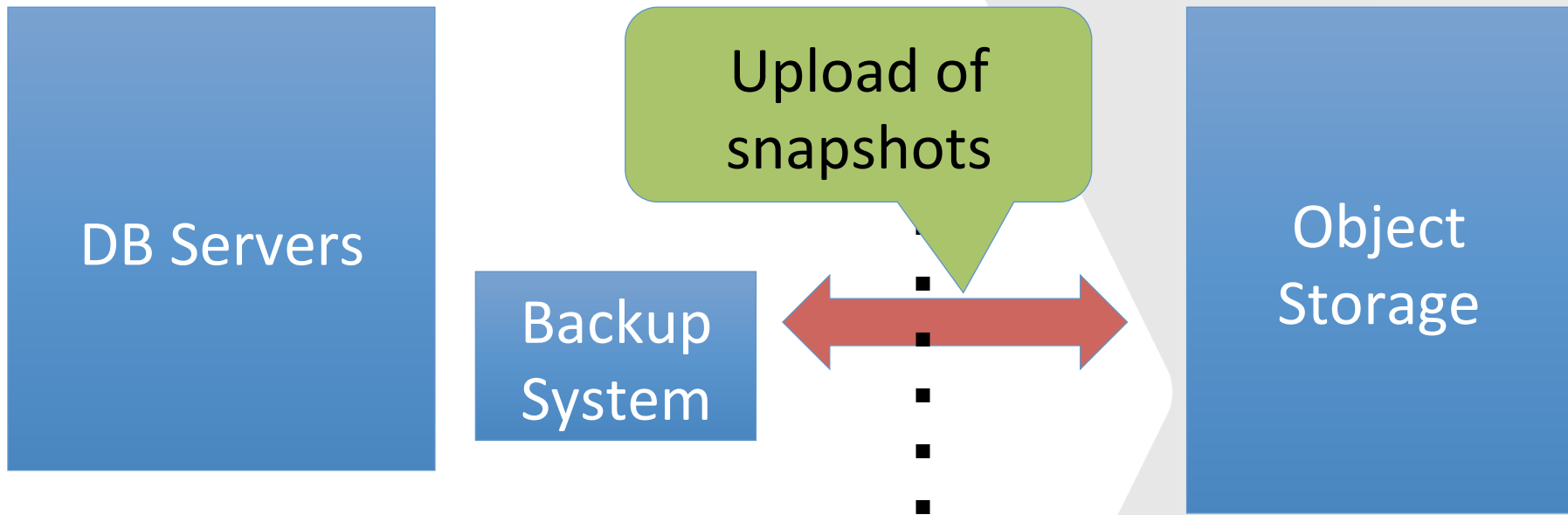
Traffic by Deployment of Servers



Internet Traffic – Outgoing

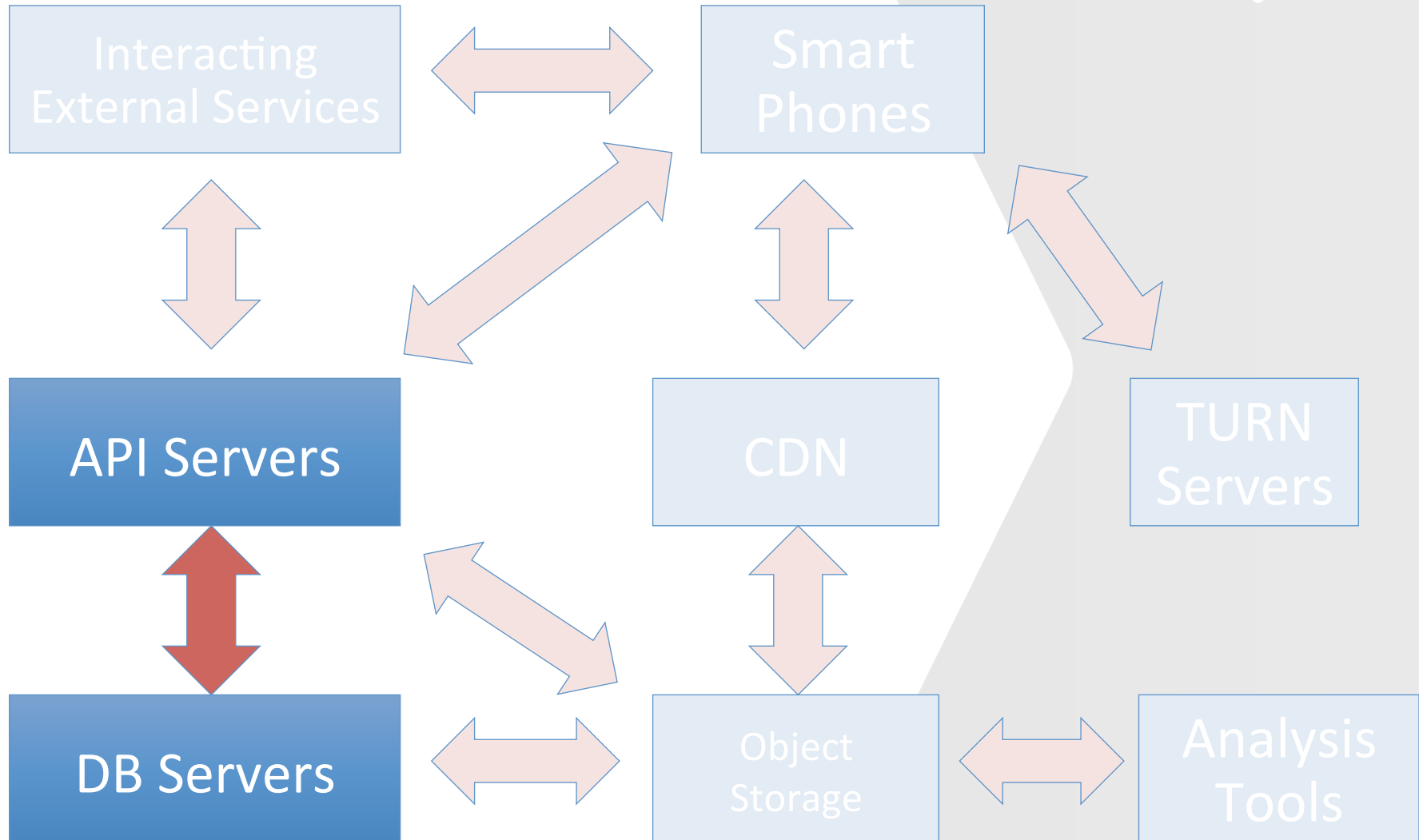


Identity of the Traffic

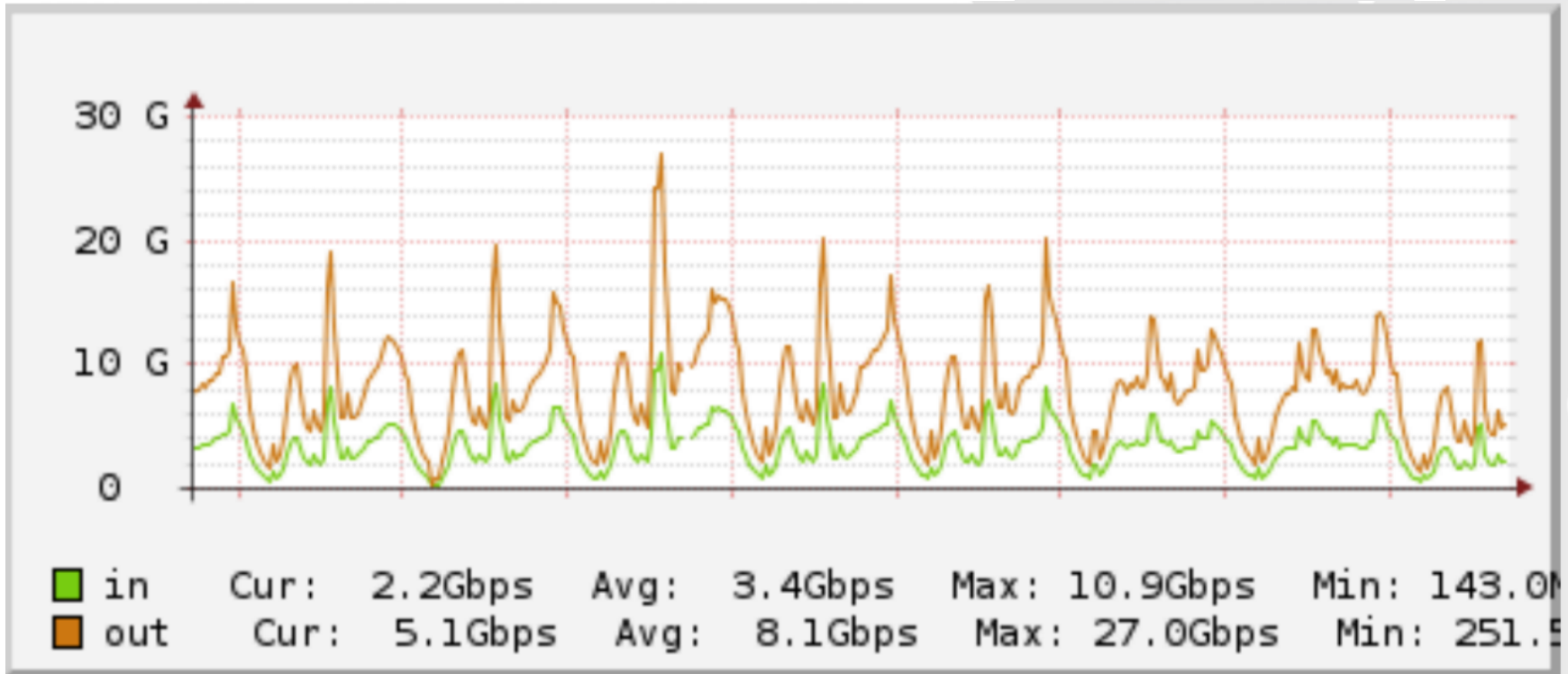


Write transfer is often free of charge.
On-premises operation requires great cost.

Internal Communication



Internal East-West Traffic



We really wanted to reduce traffic of the memcached servers for the application.

East-WestTraffic #1: Internal Optimization

Using captured PCAP data of accesses to the DB and KVS to analyze the following :

- a number of queries and their proportions
- response size
- distribution of processing time of each query



Use them for the consideration of load reduction and process optimization. The concrete outcome will be in another opportunity for a person in charge.

East-WestTraffic #2: Log Transfer and Analysis



Transfer logs by fluentd

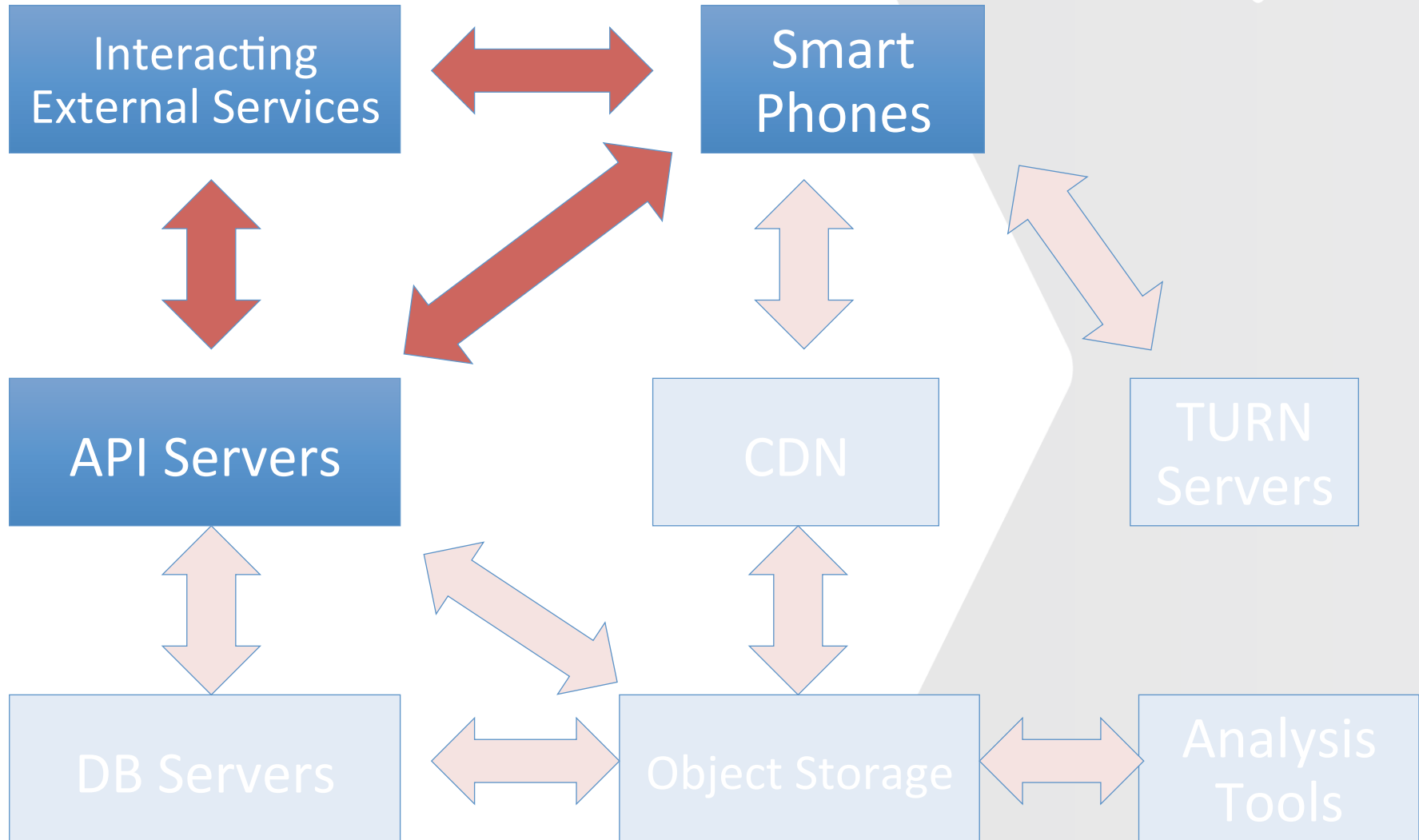
don't let APP servers have states

Increasing the log level causes 20Mbps/server traffic

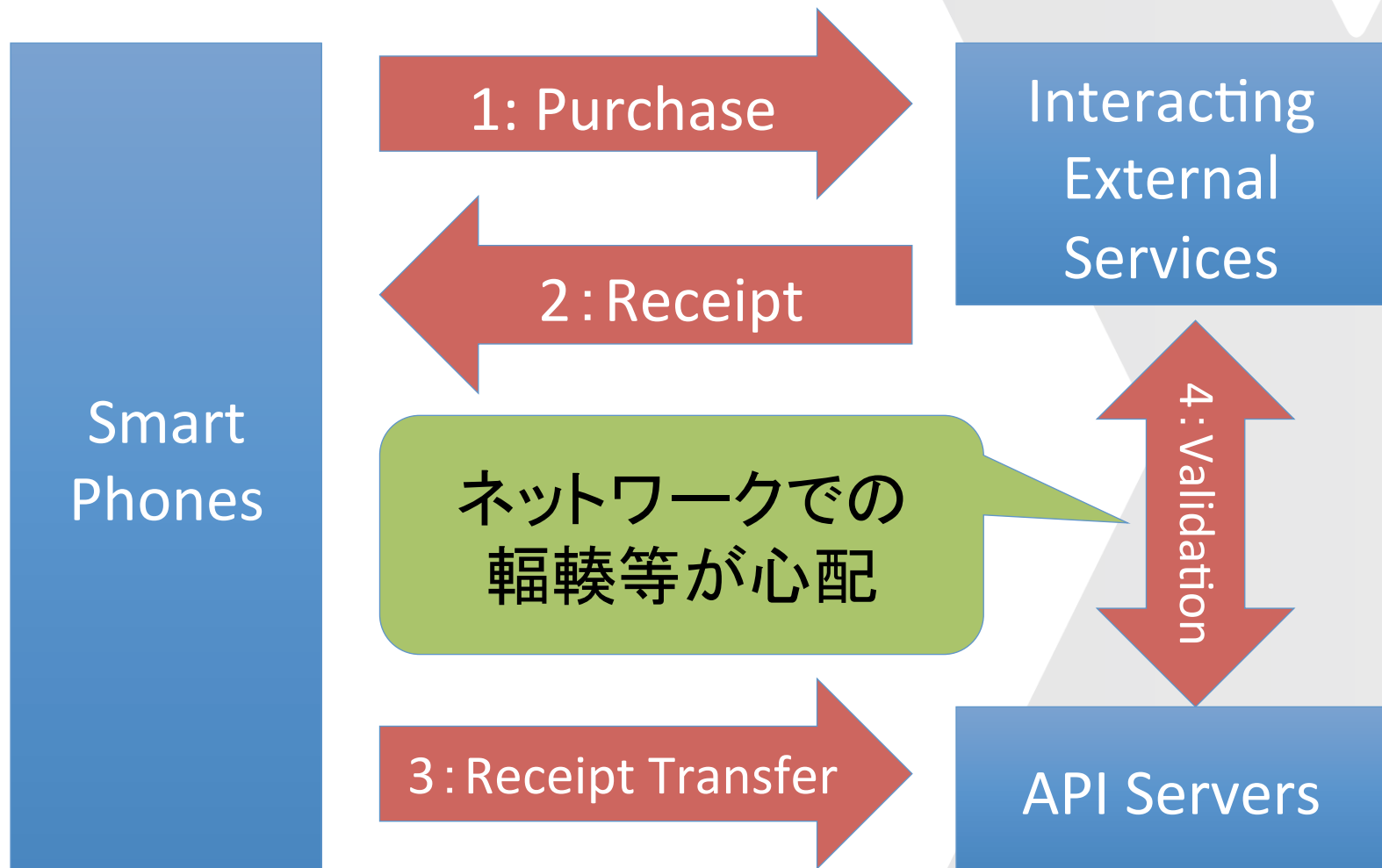
6Gbps for 300 servers!!

Trying to catch transfer errors makes burst traffic

Interaction with External Services

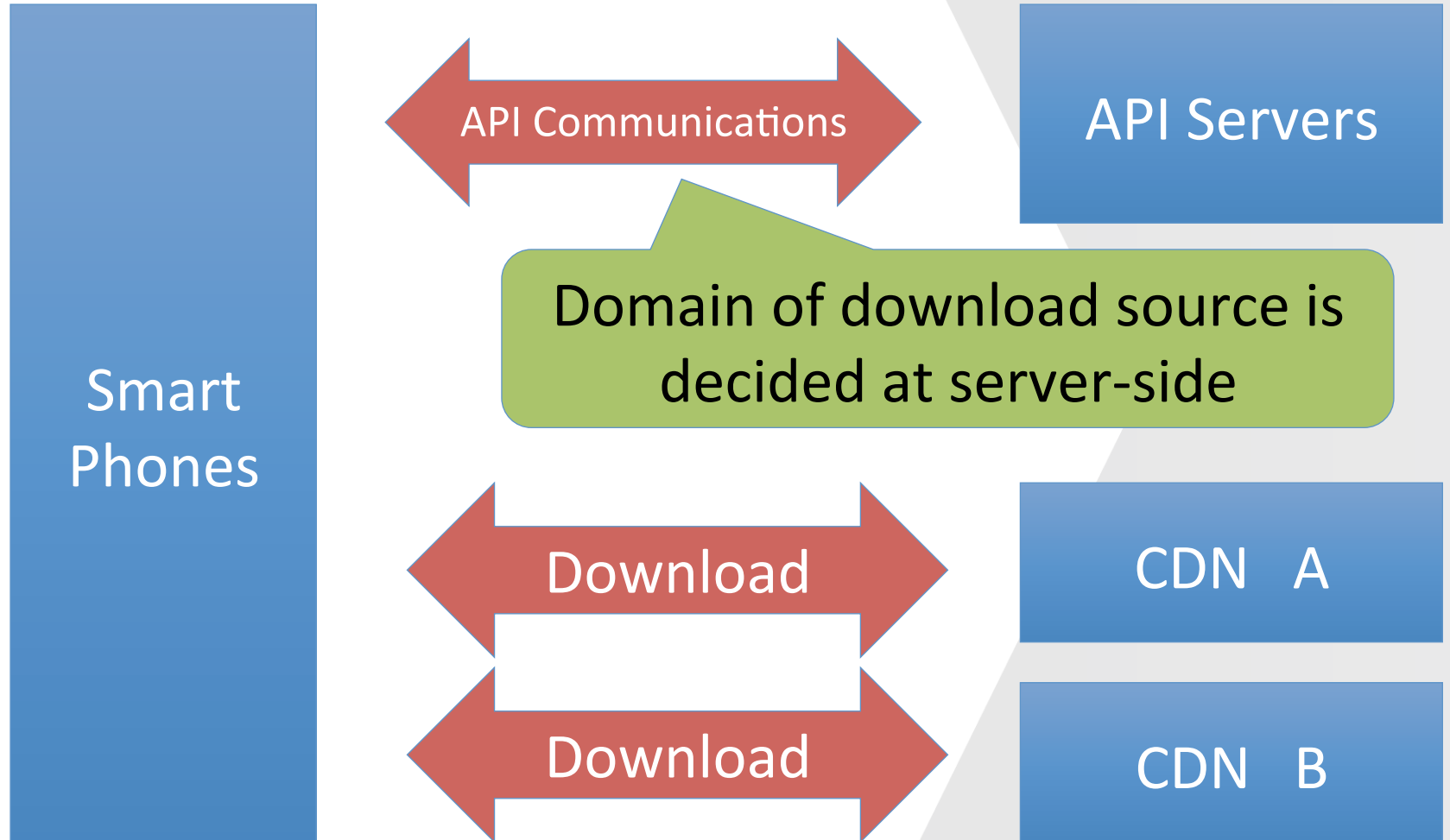


An Example for Interaction



* See documents provided by interacting services for official information

CDN



Worries about IaaS Networks

Purpose of Inter-cloud Connection

- While reducing book value of fixed assets, we want to procure computing resources in a timely matter.
- Ex: Preparation for sudden increases of CPU load
 - adding approx. 2000 cores until completion of analysis

Pain of Cost Reduction

For example, cancellation of racks

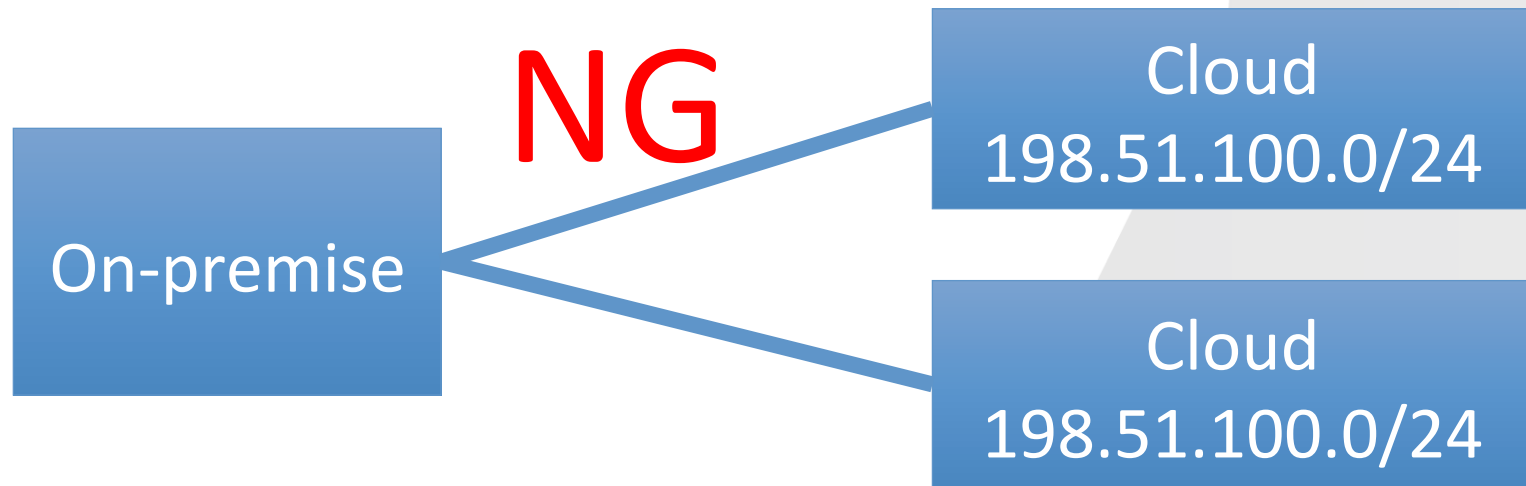
- **Need to ask service teams to move contents from the servers**
- **Cancellation become possible when all of the contents has been moved**
- **Takes time, on the order of months to complete the cancelation**
- **Disposal of the contents is also cause for concern**

Concern about Connecting Clouds

- **Resolved problems for the present**
 - Routing for each service
- **Still troubled:**
 - dead zone
 - routes on servers
 - management by APIs
 - address selection

Routing for Each Service

- Networks of each cloud service sometimes collide when used with default configuration
- by separating of the routing by services on premise, we reduced the potential for the collision issue

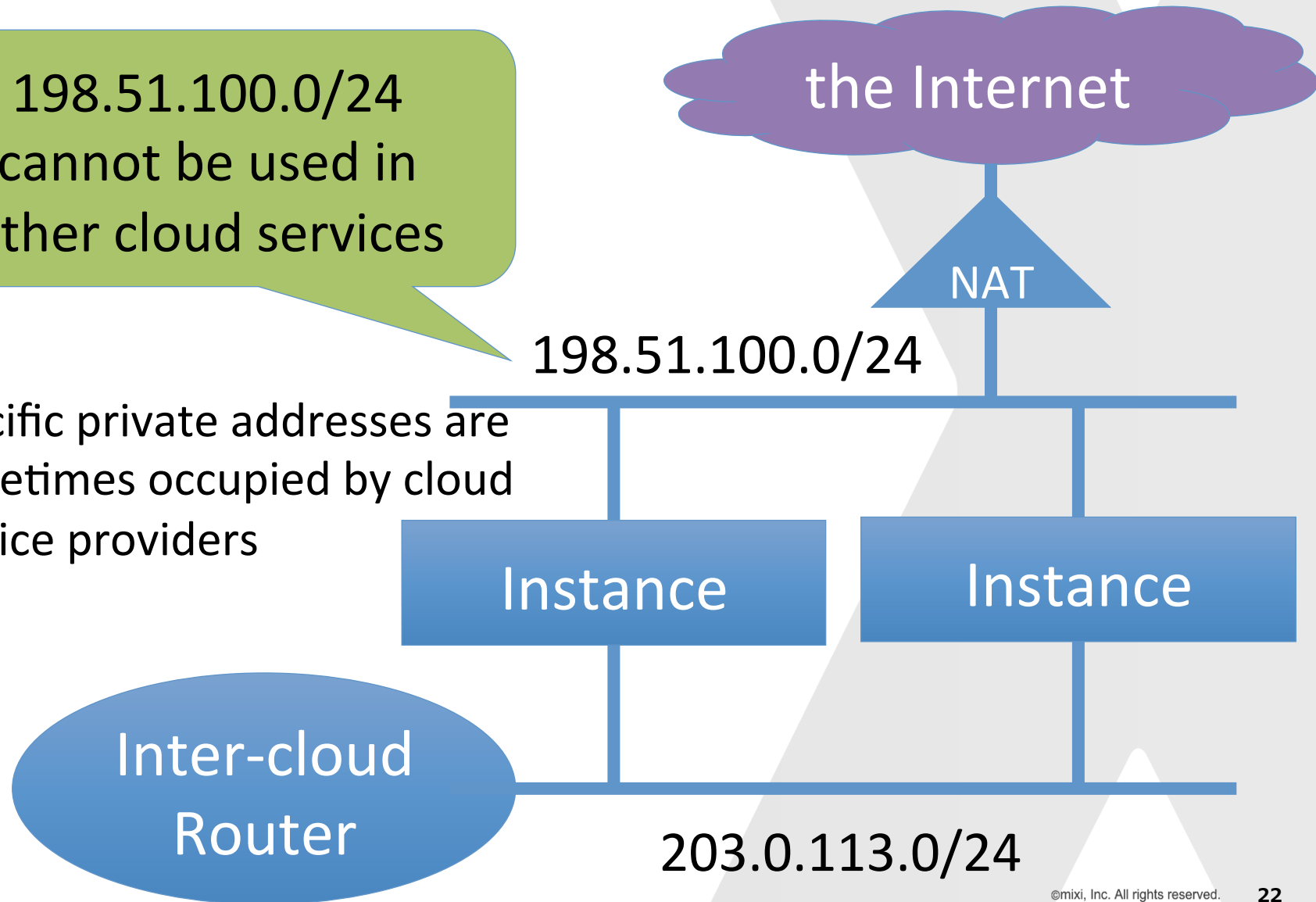


See materials of Internetweek2015 T3 for more details

Dead Zone

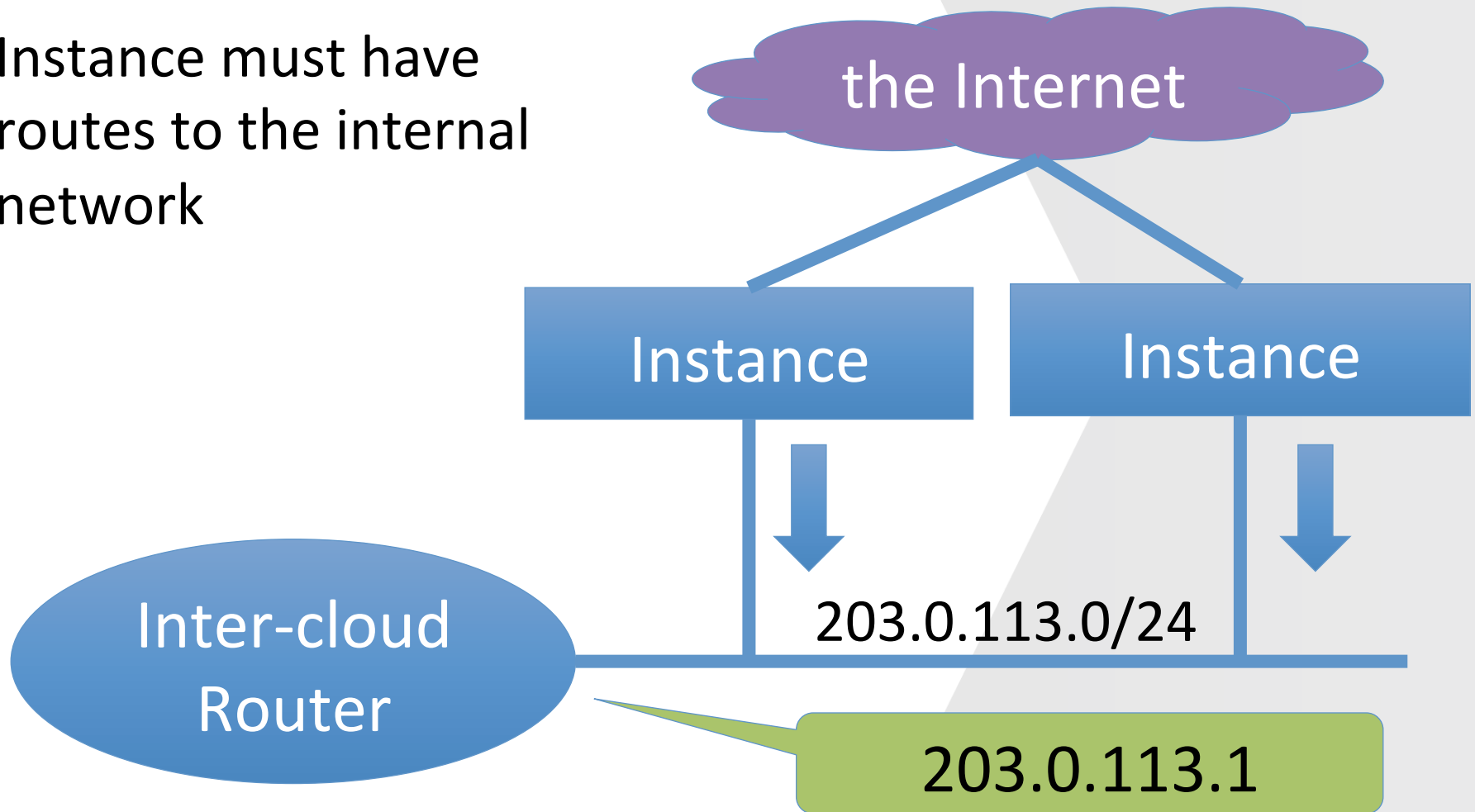
198.51.100.0/24
cannot be used in
other cloud services

specific private addresses are
sometimes occupied by cloud
service providers

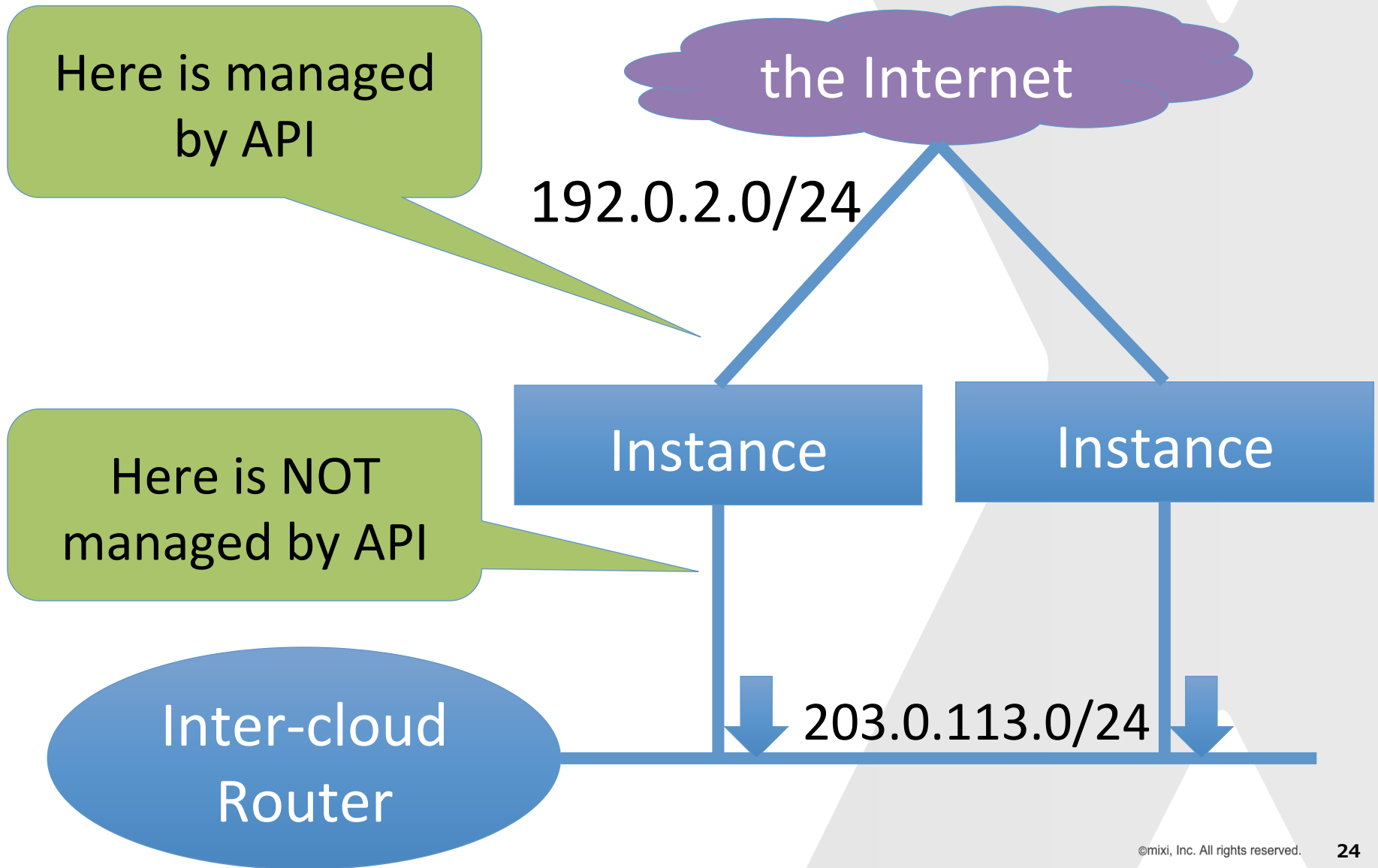


Routes of Servers

Instance must have routes to the internal network

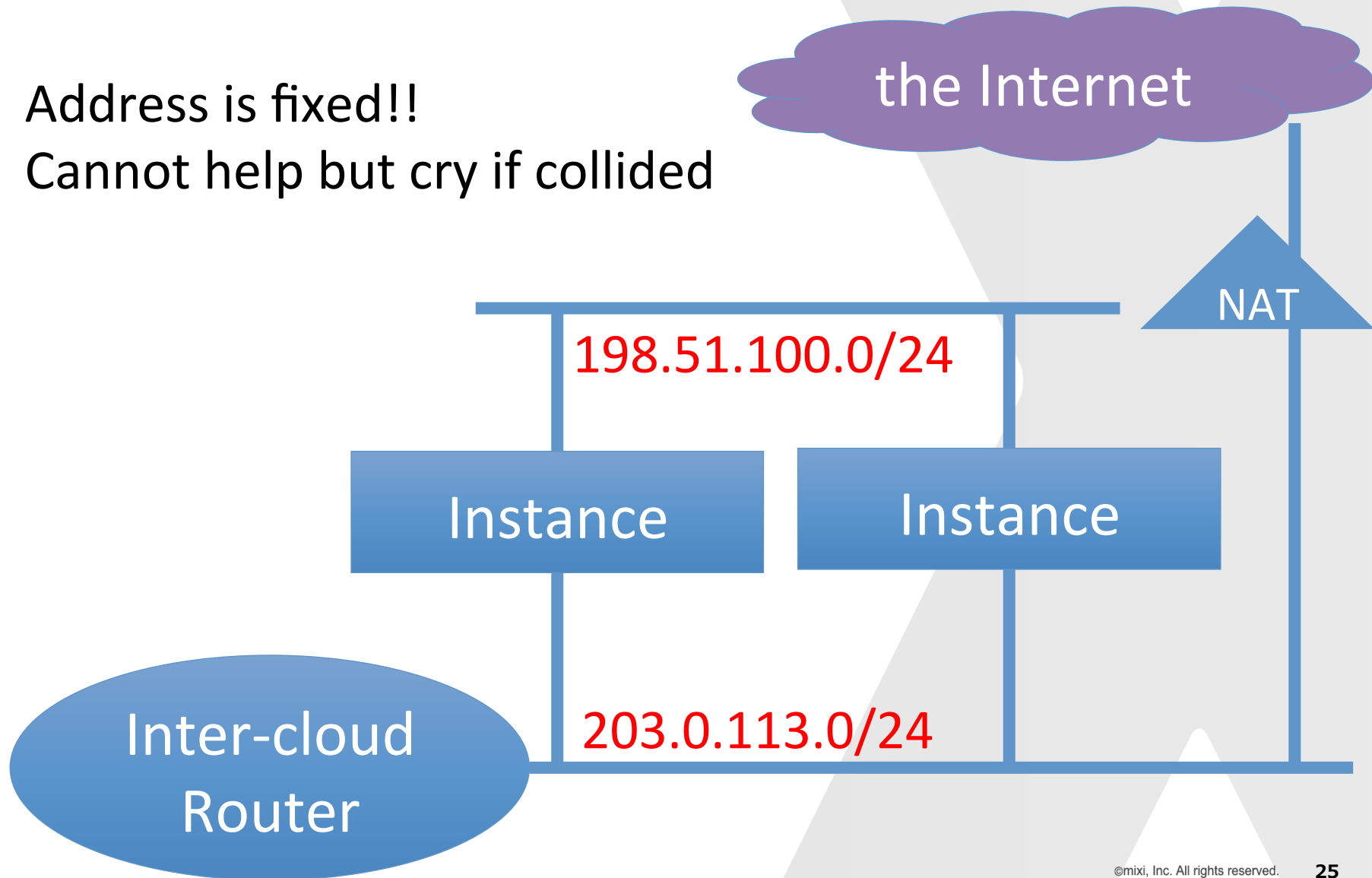


Management by APIs

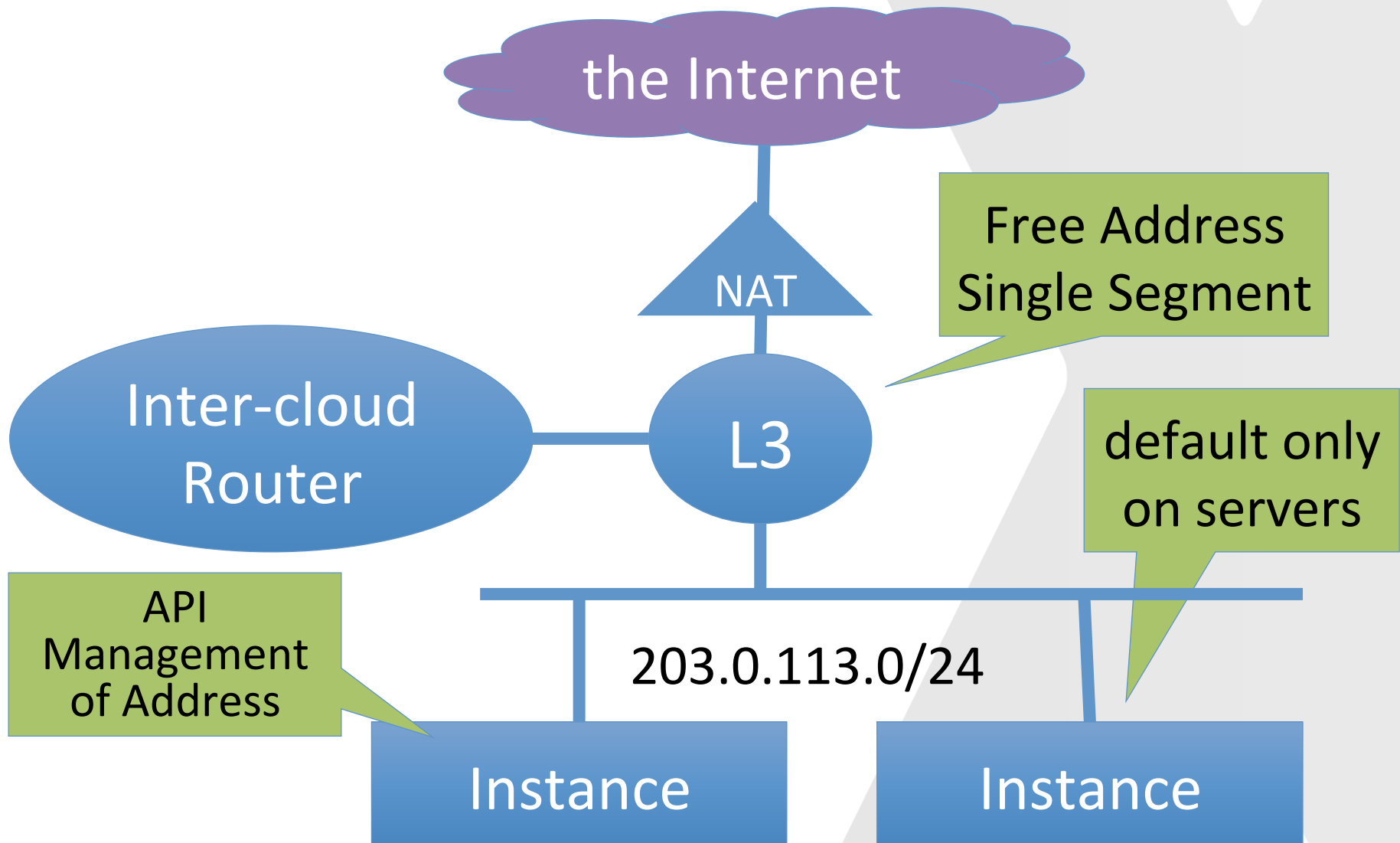


Degree of Freedom of Address Selection

Address is fixed!!
Cannot help but cry if collided



Ideal Structure for Inter-cloud Connections



Summary

- **Applications and traffic (the Internet)**
 - There might be difference from ISP ASes
 - not only traffic with eyeball
- **Cloud NW (private)**
 - Ask cloud service providers for opinions
 - also comments by fellows

Expected Questions

Is the SNS on a Certain Cloud?

- Hybrid of on-premise and cloud