CHALLENGES & OPPORTUNITIES WITH IMPLEMENTING ENTERPRISE SHAKEN/STIR

NetNumber

Douglas Ranalli
Founder, Chief Strategy Officer
dranalli@netnumber.com

NETNUMBER: All-G Signaling Control Platform

About Us

Founded 1999

Employees in 22+ countries, offices in Boston, Frankfurt, Prague and Utrecht

Globally Deployed

NetNumber products are deployed by 9 out of 10 largest global telcos and by 16 IPX carriers processing hundreds of billions transactions every months on over 550+ TITAN Edge nodes

Multi-Protocol Multi-Service TITAN

NetNumber TITAN Edge compute platform with 6+ industry protocol stacks available for numerous customer-defined and 15+ different off-the-shelf network and data services
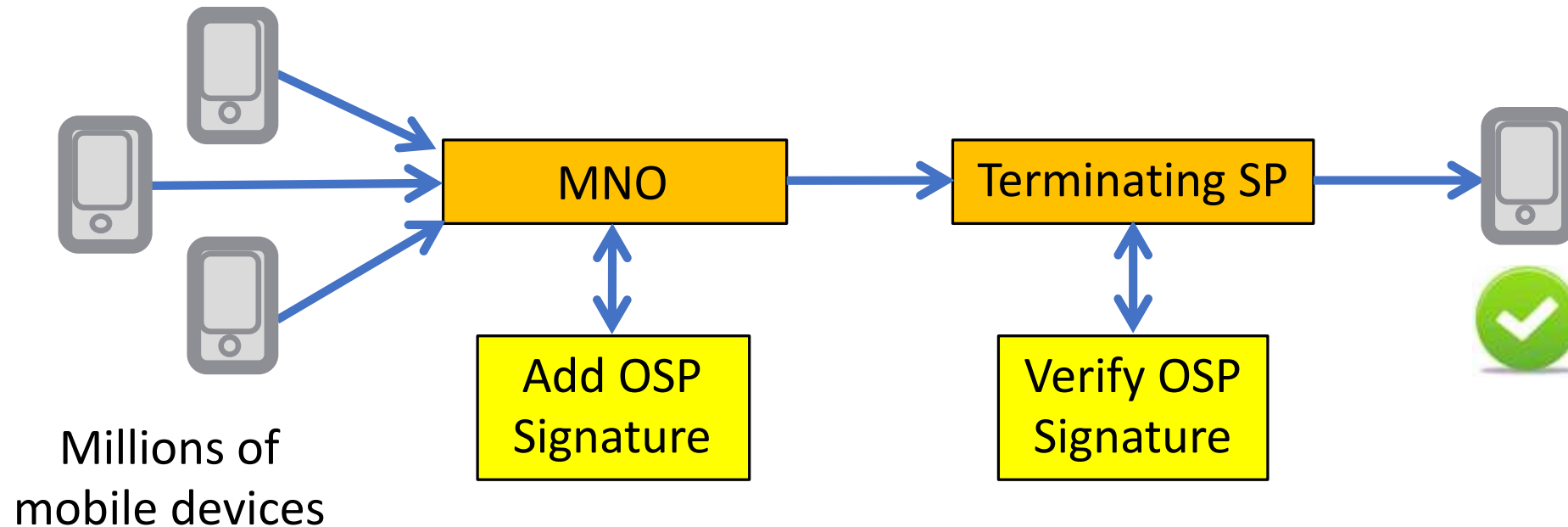
SW-based and Cloud-ready

NetNumber products can be deployed as a VM on KVM/Openstack and ESXi/VMware based VIs, or on COTS HW, or as a VNF managed by a VNF Manager (VNFM)

Signaling – Routing – Security – Global Data – Private Networks

HOW IS ENTERPRISE SHAKEN/STIR DIFFERENT?

First let's look at SHAKEN/STIR for directly connected mobile subscribers

Millions of mobile devices
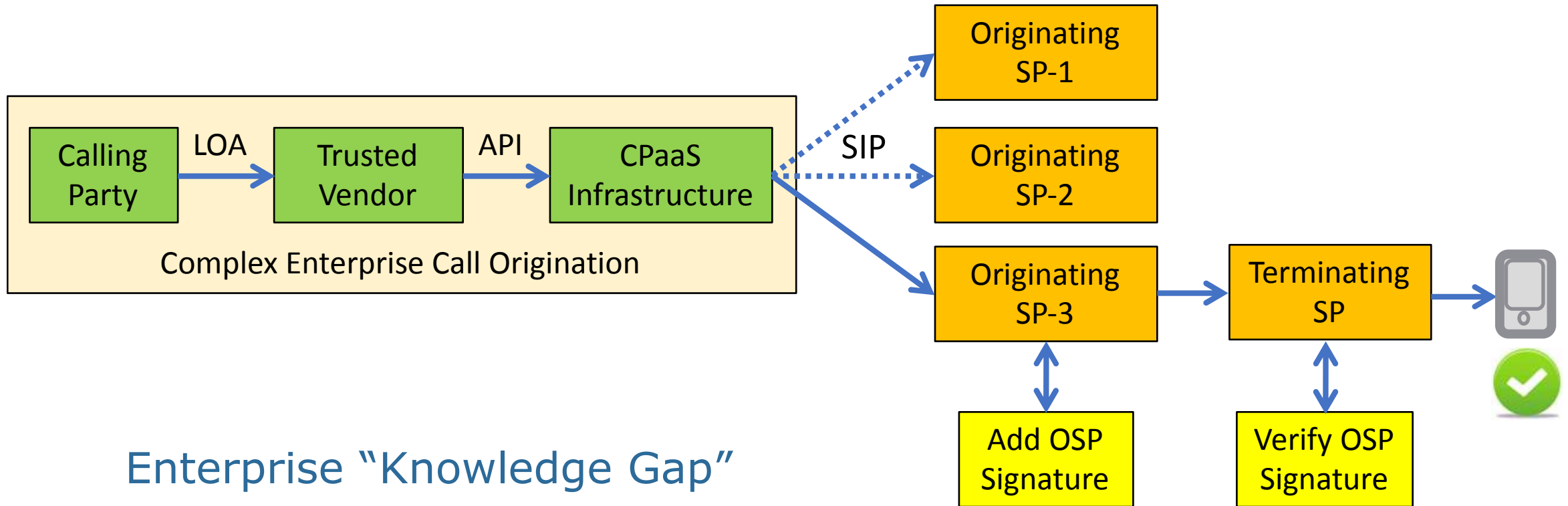
Baseline SHAKEN/STIR Framework

Works perfectly for directed connected devices/subscribers

MNO knows exactly which device originated the call

HOW IS ENTERPRISE SHAKEN/STIR DIFFERENT?

Enterprises are often more complex than directly connected subscribers

Enterprise "Knowledge Gap"

Who is responsible for originating the call?

COMPLEX CALL ORIGINATION USE CASE

- **Enterprise**: Gotham City
  - Uses phone network to alert residents of fire and safety risks
  - Expects calls to be presented to residents in a way that will be trusted
  - Believes it is very important that citizens answer their calls
  - Expects to define the calling name display (e.g. "Gotham City")
  - Needs flexibility to pick one or more vendors to handle their outbound calls

- **Trusted Vendor**: Everbridge
  - Manages outbound calling programs for thousands of enterprise customers
  - Customer option to use their own TNs (BYON) or use Everbridge supplied TNs
  - Needs flexibility to distributes calls to the network via multiple CPaaS providers

- **CPaaS Infrastructure**: Everbridge, Fonative, Twilio, etc.
  - Distribute outbound calls across multiple networks for capacity, resilience and price

HOW TO FILL THE ENTERPRISE "KNOWLEDGE GAP"

- **Option-1**: **Central Database** of Vetted Enterprises
  - OSP checks database using calling TN before signing the call
  - *Key issue*: How does OSP know who actually originated the call?

- **Option-2**: Vetted **Enterprise Signature**
  - OSP verifies enterprise signature before signing the call
  - *Key issue*: How will enterprises get certificates and learn to sign calls?

- **Option-3**: **Combination** Of Both Models
  - OSP verifies enterprise signature and checks database.
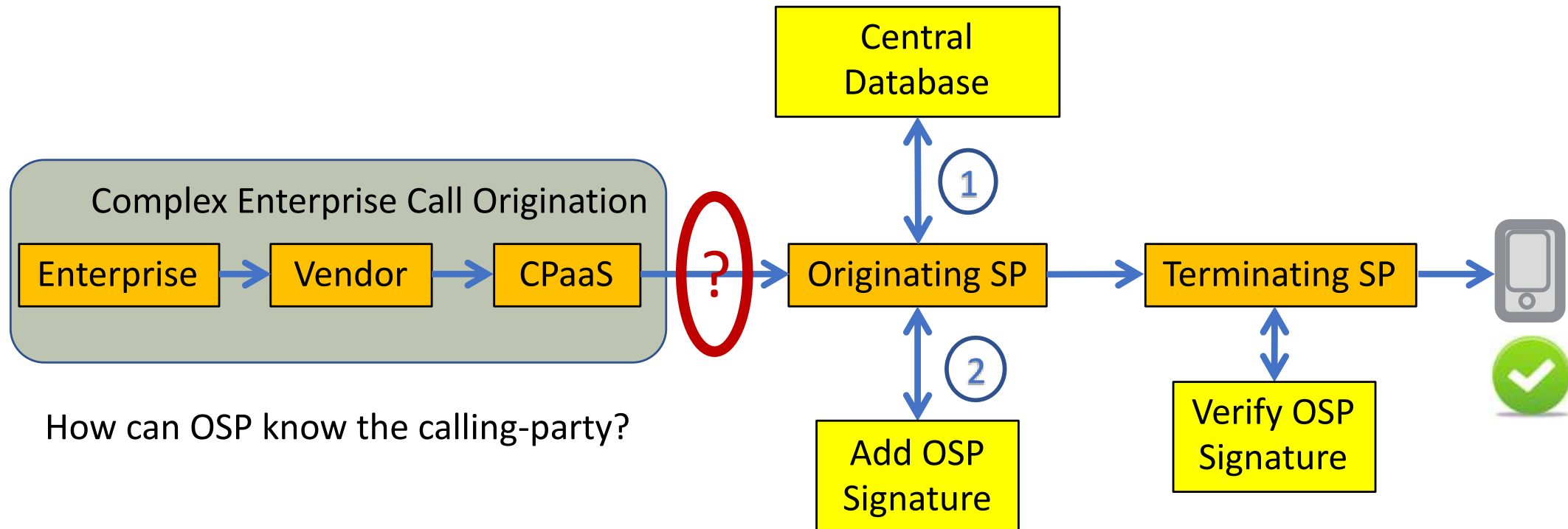 - *Key issue*: Is combination better or just more complicated?

CENTRAL DATABASE

Key Questions:

How does OSP know which enterprise originated the call?

How do we avoid bad-guys using the database of trusted TNs?
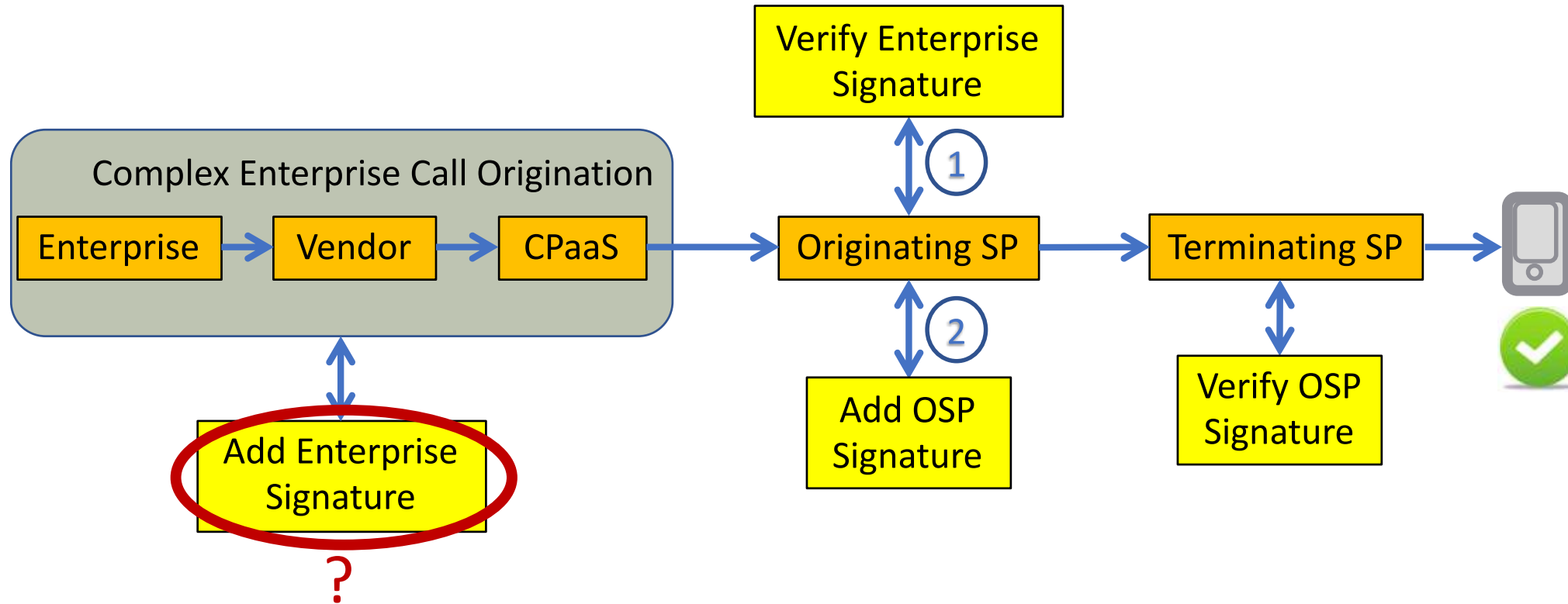

How can OSP know the calling-party?

ENTERPRISE SIGNATURES

Key Questions:

How does the enterprise get a certificate?

How does the enterprise sign its outbound calls?

HOW WILL ENTERPRISE SIGNATURES WORK?

- **Enterprise Vetting**
  - Multiple vetting agencies are already developing solutions (iconectiv, Numeracle…)
  - Competition will define pricing for vetting services
  - Vetting to include Enterprise, Trusted Vendors and TN resources

- **Issuing Enterprise Certificates**
  - Multiple entities engaged with STI-PA and STI-CAs to define how to issue certificates to Enterprise customers. (NetNumber, Neustar, Comcast…)
  - Competition will define pricing. No need for Enterprises to learn how to do this.
  - Enterprise Signature only needs to "inform" the SHAKEN STI-AS function performed by the OSP. No change in SHAKEN framework required.

- **Signing Enterprise Calls**
  - Multiple entities already building cloud-based enterprise call signing solutions
  - Competition will define pricing. No need for Enterprises to learn how to do this.
  - Enterprise call-server makes API call (HTTPS or SIPS) to get outbound calls signed.

WHAT DO ALL SOLUTIONS SHARE IN COMMON?

- OSP Role
  - o Broad agreement OSP is responsible for setting "attestation" and signing every call.

- Enterprise Vetting
  - o Broad agreement that enterprise identity and TN allocations must be vetted for participation in SHAKEN/STIR.

- Cost Allocation
  - o Broad agreement that enterprise complex call use-cases can be supported but the cost of support should be borne by participating enterprises who use the system.

- Next Step
  - o Broad agreement that real-world implementations are required to validate use-cases.

LIKELY NEXT STEPS

- Central Database
  - o Advocates will move forward with an implementation if they find demand from enterprise customers.
  - o Pricing and other business terms will play an important role in adoption.

- Enterprise Signatures
  - o Multiple implementations are already being developed
  - o Competitive market will define pricing
  - o Most likely outcome is "fully outsourced service" used by enterprise customers
  - o Enterprises aren't expected to become SHAKEN/STIR experts

- Enterprise Vetting Already Starting
  - o All solutions require participating enterprise customers and their trusted vendors to be vetted before joining the SHAKEN/STIR community.
  - o Multiple vetting agencies are already beginning work.

HOW SHOULD WE PICK AN ENTERPRISE SOLUTION?

- Agree on the common principles through ATIS working group

- Enable multiple implementation models to co-exist

- Let the market participants gain experience

- End-state may be mixture of multiple implementation models

THANK YOU