

OpenSIPS Summit Atlanta, GA

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Jim.Dalton@TransNexus.com

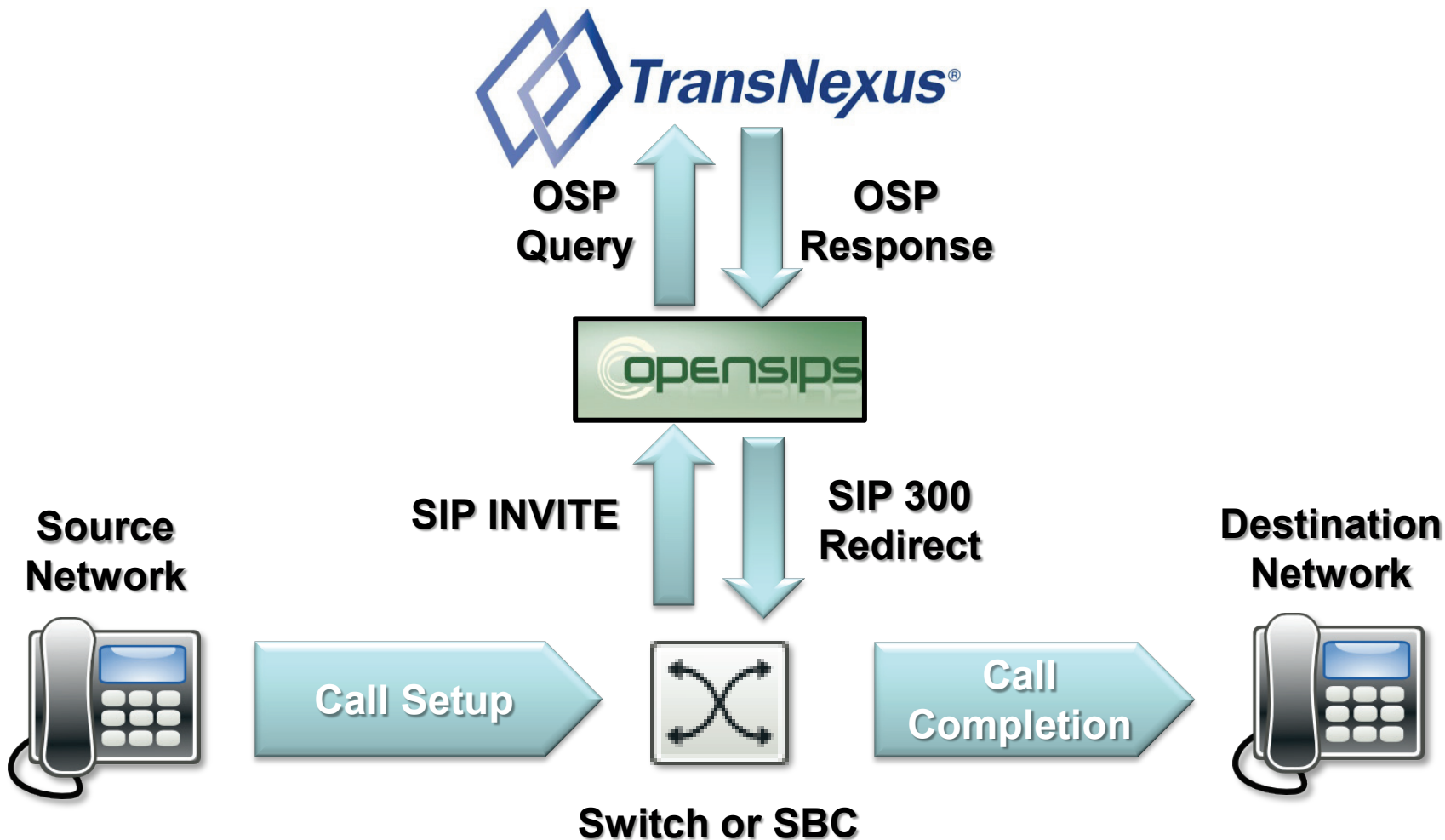
Background

- TransNexus founded in 1997 with focus on management software for VoIP Peering
 - Least Cost & Quality of Service Routing
 - Number Portability Correction
 - Fraud Detection & Control
 - Wholesale Billing & Credit Control
- Complementary solutions for:
 - Broadsoft
 - Cisco
 - Metaswitch
 - OpenSIPS
 - Oracle Acme Packet
- History with OpenSIPS

TransNexus Customers



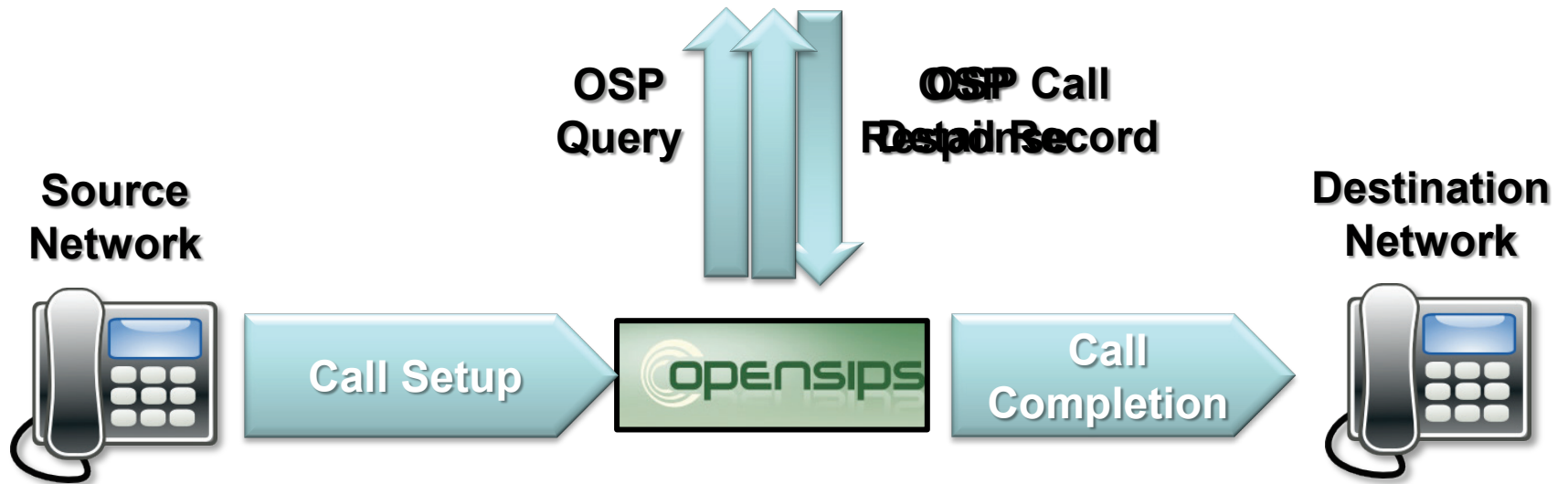
Redirect Implementation



Redirect Use Cases

- Least Cost Routing & Number Portability
- BroadWorks & Metaswitch
 - Retail Service Providers, CLECs
 - Hosted PBX
 - SIP Trunking
- Oracle Acme Packet
 - SIP Trunking
 - Marketing Companies / Call Centers

Proxy Implementation



Proxy Use Cases

- Least Cost Routing & Number Portability
- Fraud Control & Billing
- OpenSIPS as a softswitch
 - Wholesale Minutes Trading
 - SIP Trunking Providers
 - Dialers

What is OSP?

- Open Settlement Protocol defined by European Telecommunications Standards Institute (ETSI)
- OSP is a message set for inter-domain pricing, authorization and accounting
- OSP messages
 - XML format
 - Transmitted via HTTP
- An OSP server is a web server
- OSP is supported by OpenSIPS, Asterisk, FreeSWITCH and Kamailio

OSP Message Example

HTTP/1.1 200 OK
Server: IP address of OSP server
Date: Thu, 12 May 2005 18:32:59 GMT
Connection: Keep-Alive
Keep-Alive: timeout=3600, max=5000
Content-Length: 1996
Content-Type: text/plain

HTTP Header

```
<?xml version='1.0'?>  
<Message messageId='11703738491' random='21655'>  
<AuthorizationResponse componentId='11703738490'>  
<Timestamp>2005-05-12T18:32:59Z</Timestamp>  
<TransactionId>4785098287068543017</TransactionId>  
<Destination>  
  <CallId encoding='base64'>MTEExNTkxOTE3Ny45</CallId>  
  <DestinationInfo type='e164'>Called Number</DestinationInfo>  
  <DestinationSignalAddress>[IP Address:Port]</DestinationSignalAddress>
```

OSP Message

OSP CDR

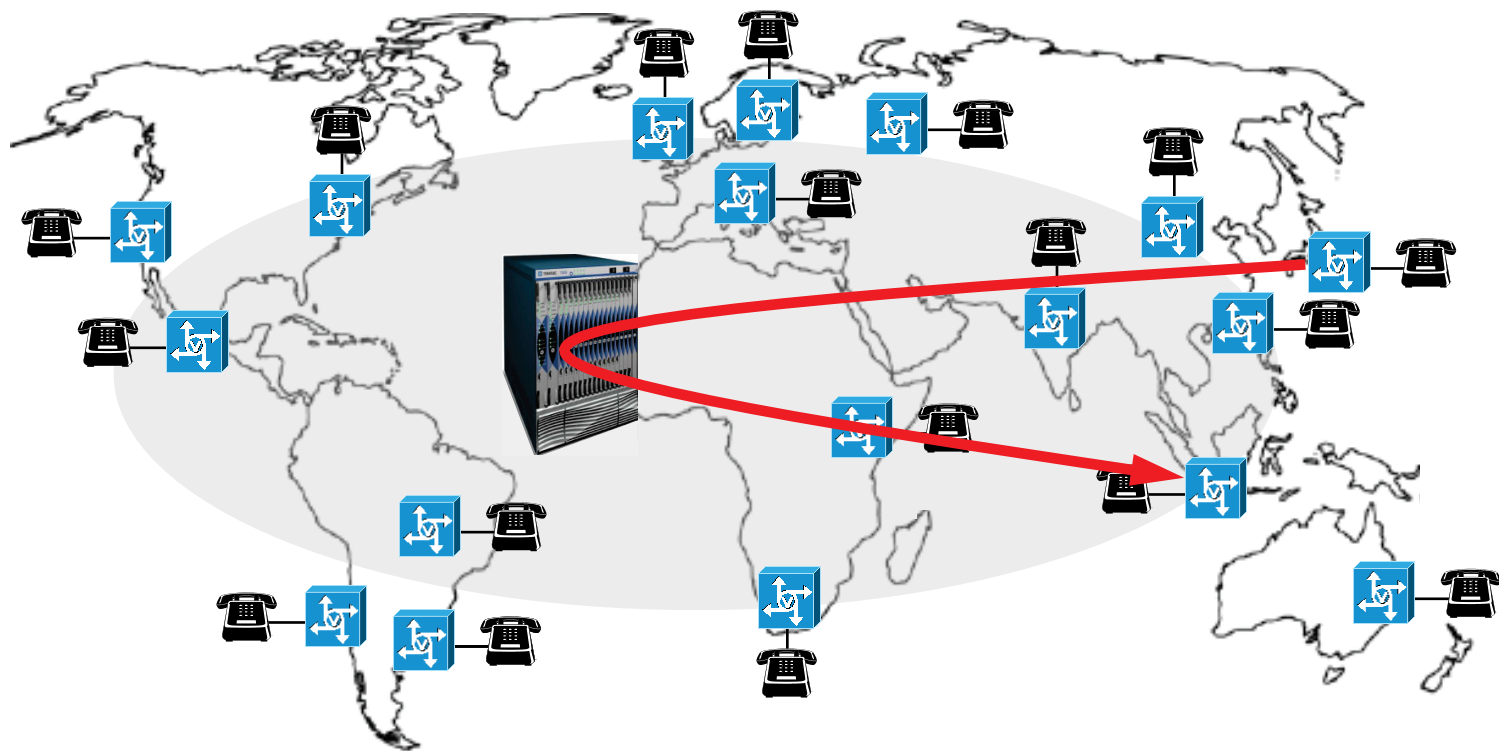
```
<UsageIndication componentId="47850982870685430174">
<Timestamp>2005-05-12T17:33:33Z</Timestamp>
<Role>source</Role>
<TransactionId>Transaction ID</TransactionId>
<CallId encoding="base64">Call ID</CallId>
<SourceInfo type="e164">Calling Number</SourceInfo>
<DeviceInfo type="transport">[Source IP Address]</DeviceInfo>
<SourceAlternate type="transport">[Proxy IP Address]</SourceAlternate>
<DestinationInfo type="e164">Called Number</DestinationInfo>
<DestinationAlternate type="transport">[Destination IP address]</DestinationAlternate>
<UsageDetail>
  <Amount>23</Amount>
  <Increment>1</Increment>
  <Unit>s</Unit>
  <StartTime>2005-05-12T17:33:10Z</StartTime>
  <AlertTime>2005-05-12T17:42:12Z</EndTime>
  <EndTime>2005-05-12T17:42:27Z</EndTime>
  <ConnectTime>2005-05-12T17:42:17Z</ConnectTime>
  <ReleaseSource>0</ReleaseSource>
</UsageDetail>
```

OSP Peering – New Opportunity

- OSP, combined with Public Key Infrastructure (PKI) security, enables Global IP application peering.
- Trusted third parties can enable secure access & billing among anonymous peers.
- Possible Services
 - Clearinghouse for SIP interconnect billing
 - Video, Messaging, Gaming

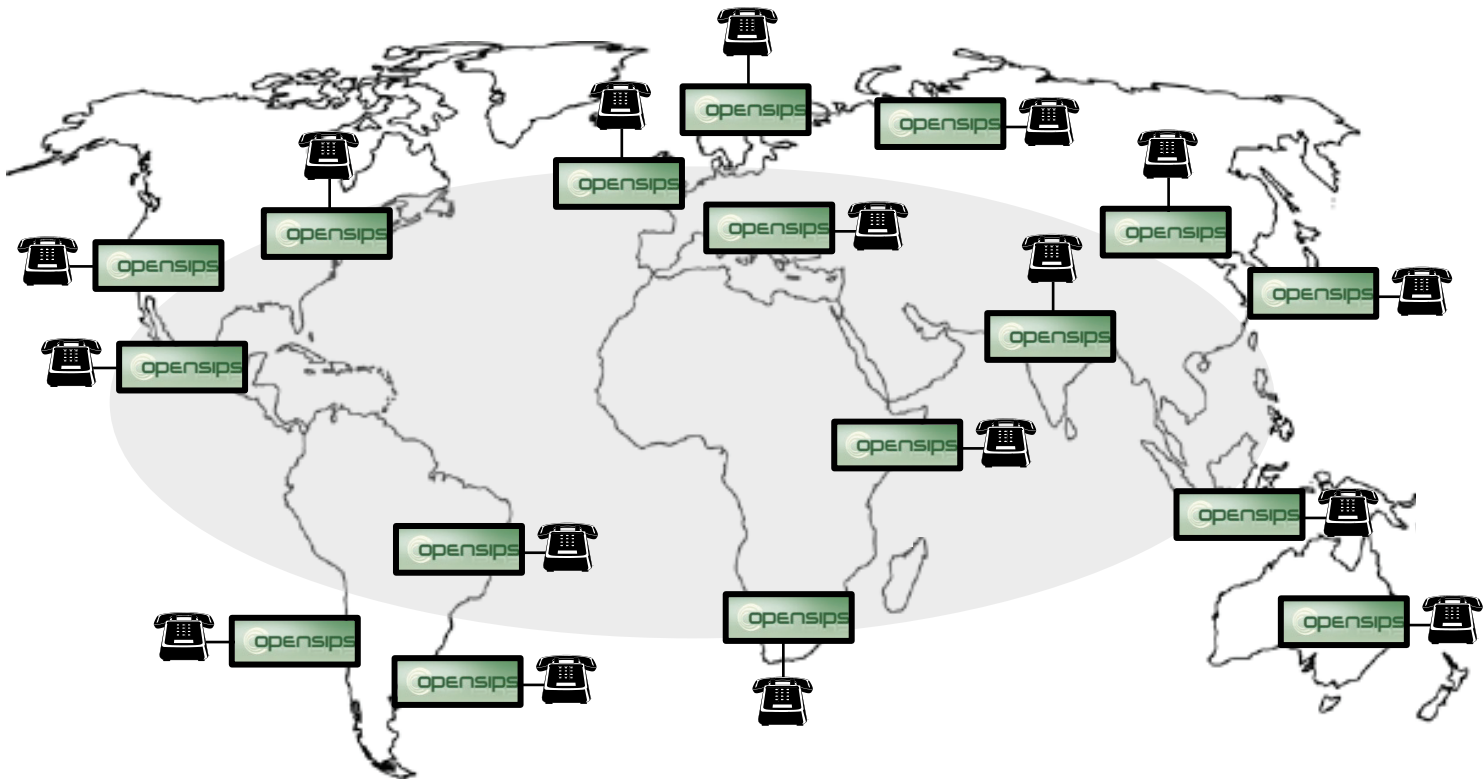
Wholesale Interconnect

- Conventional solution is to route all calls via a softswitch or session border controller.



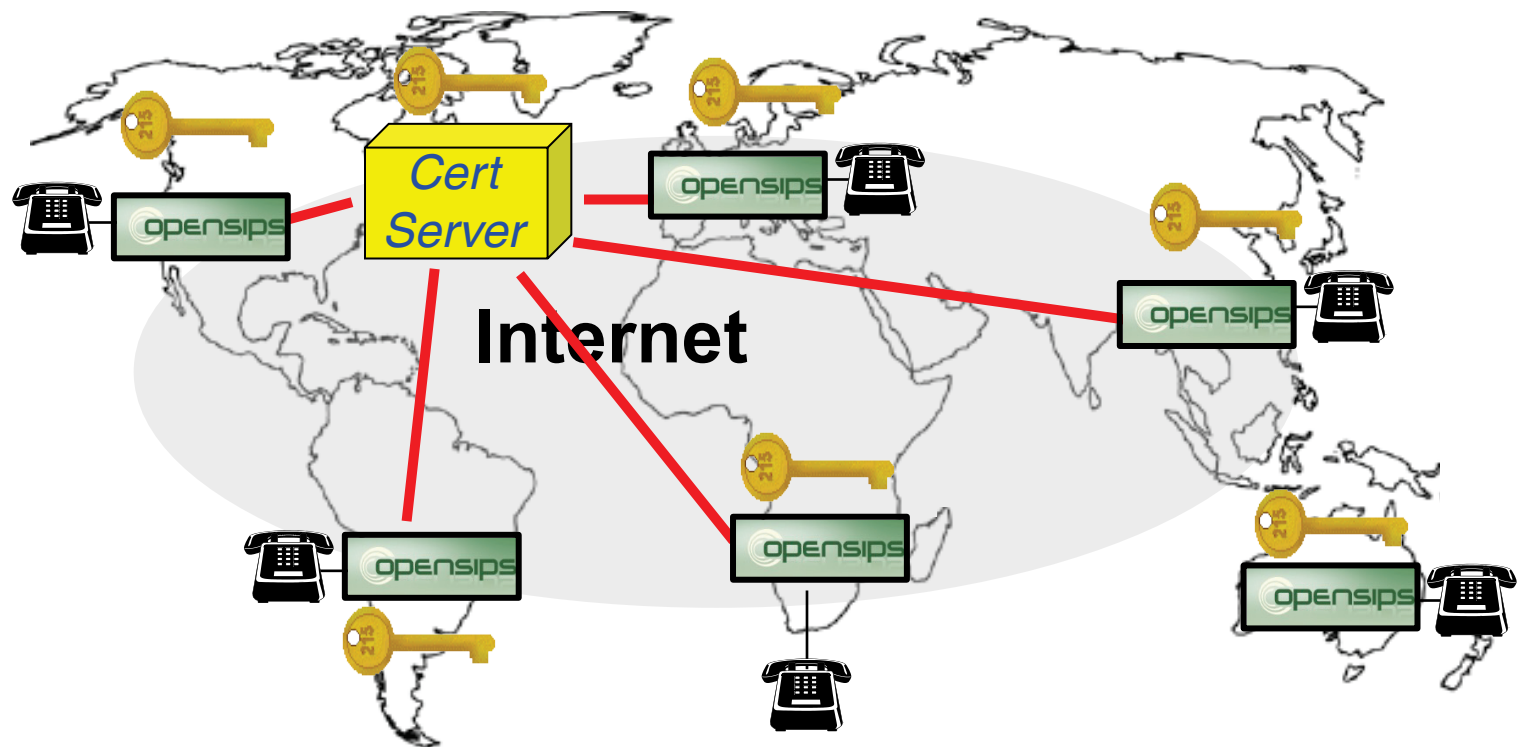
OSP Peering is Better

- OSP enables Secure Direct Peering & **Billing** between any two end points

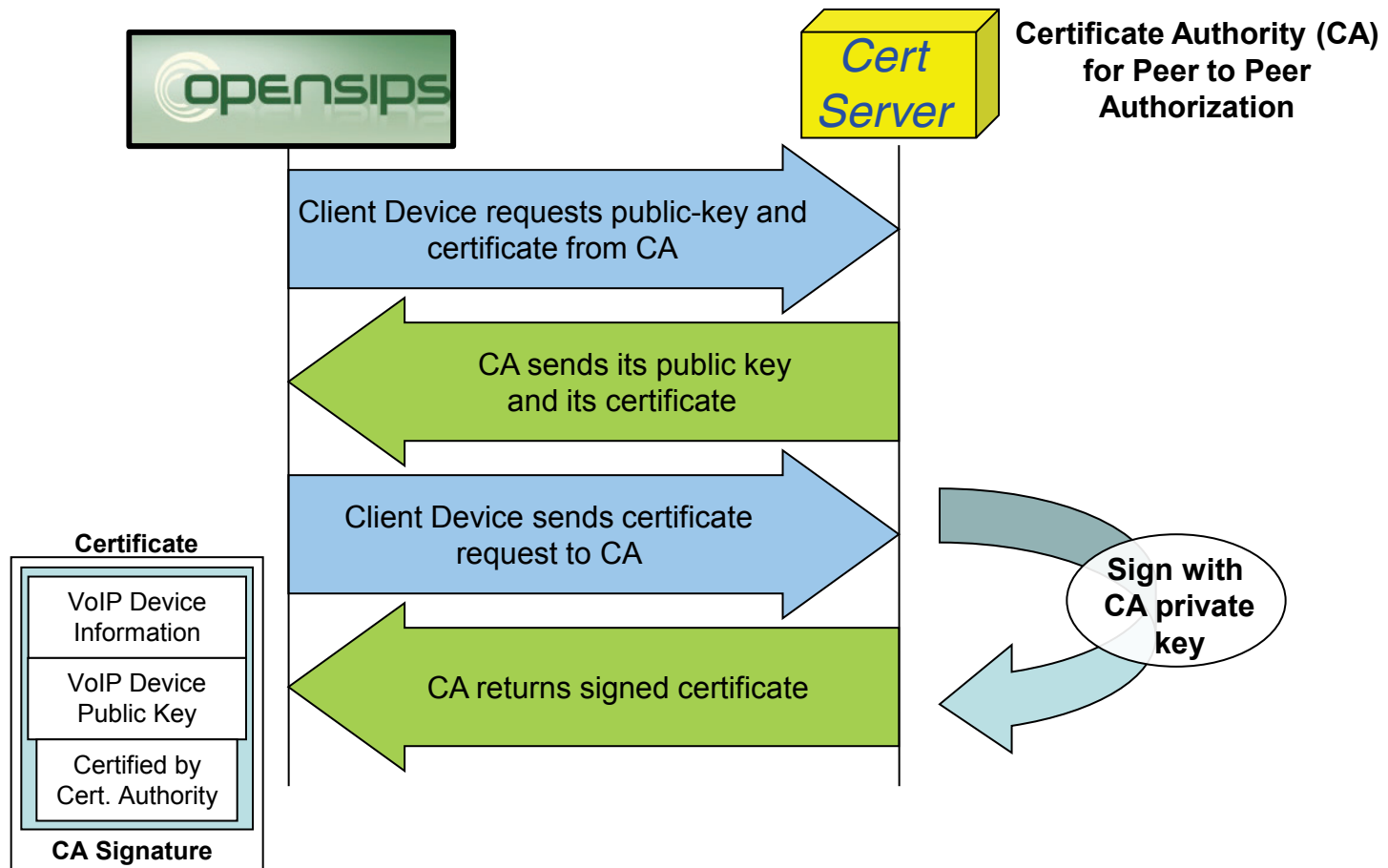


Trust Among Anonymous Peers

- OSP Peering is based on a shared Public Key Infrastructure (PKI)

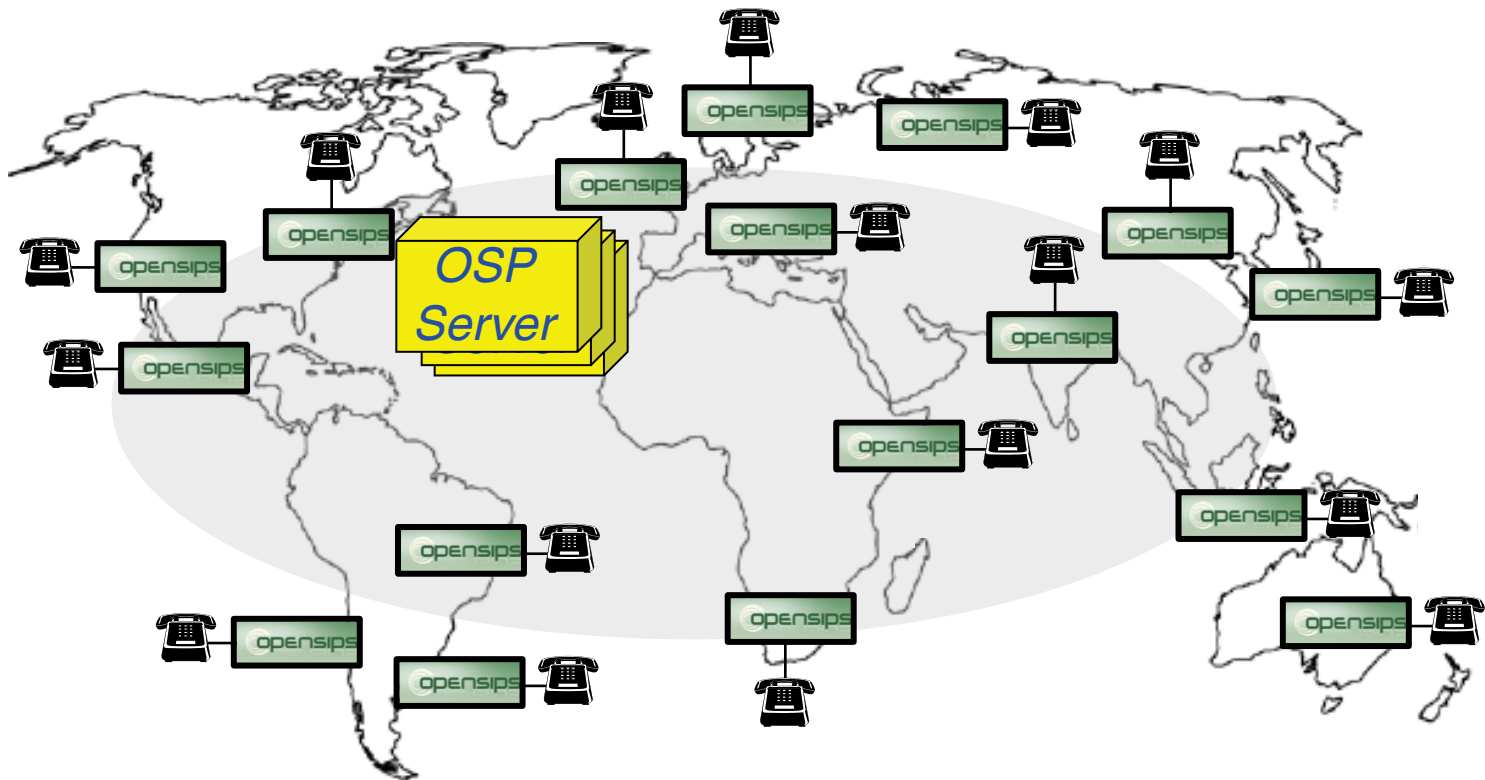


Establishing PKI Security Services



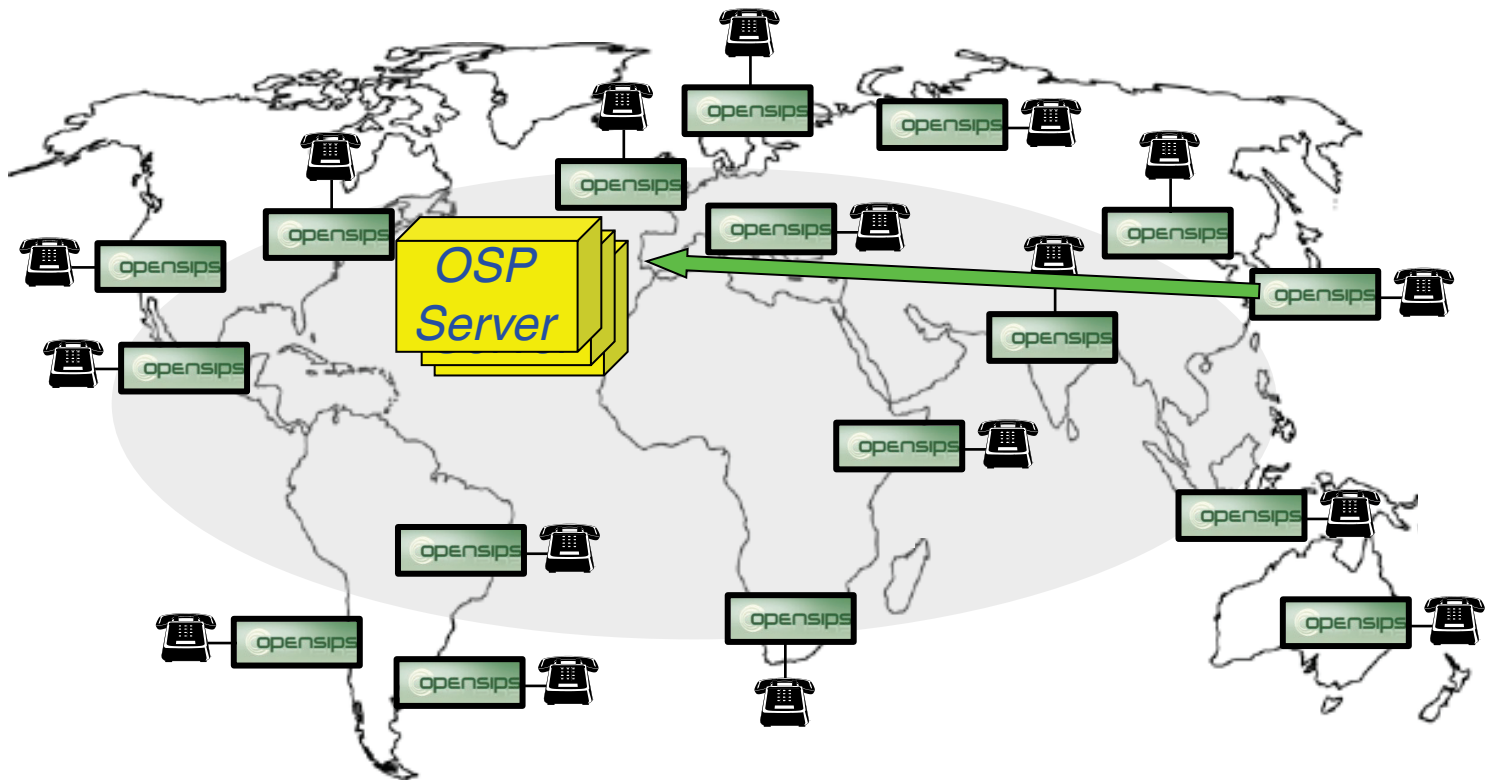
How OSP Peering Works

- All peers have a trusted relationship with the OSP Server Operator



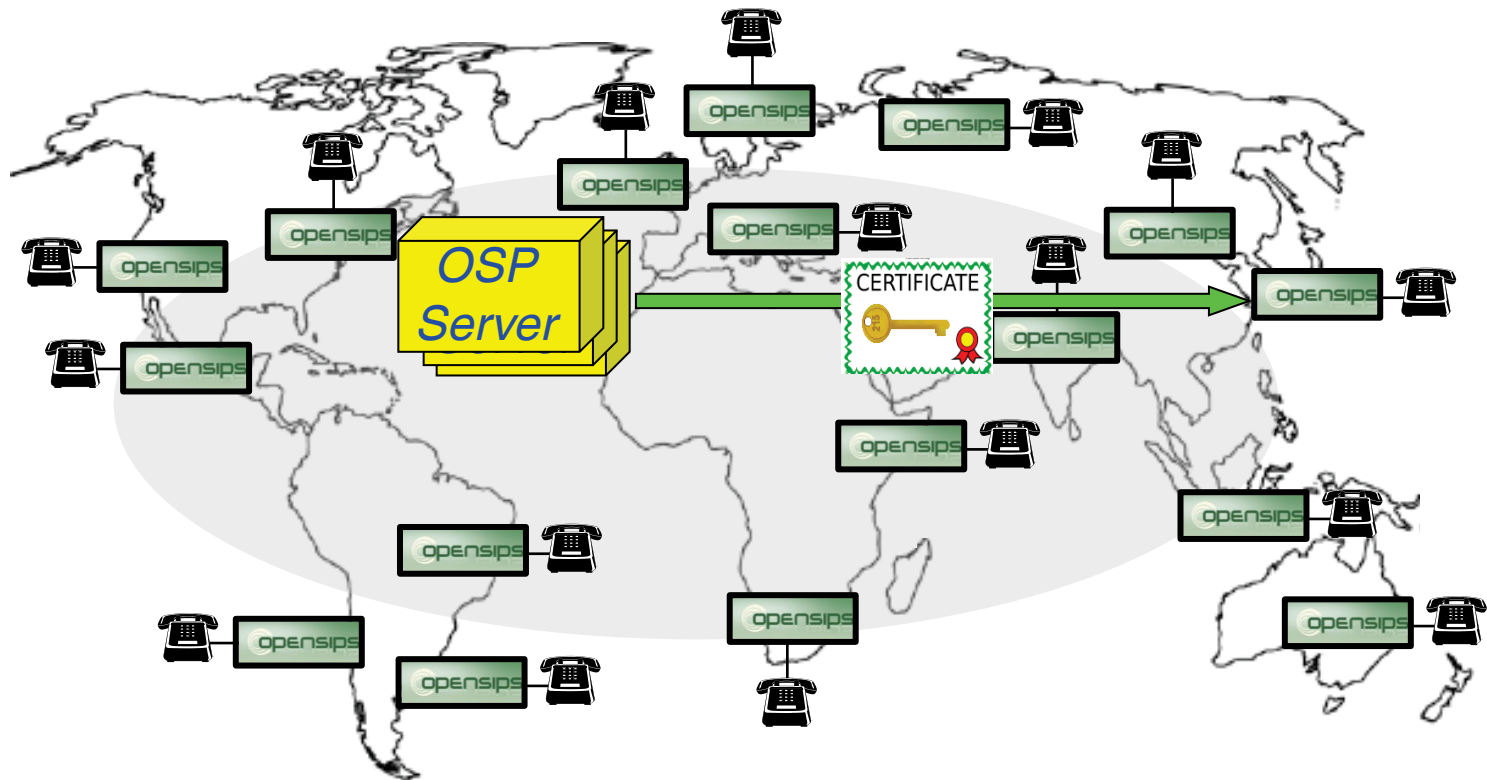
How OSP Peering Works

- Source Peer sends Authorization Request to OSP Server



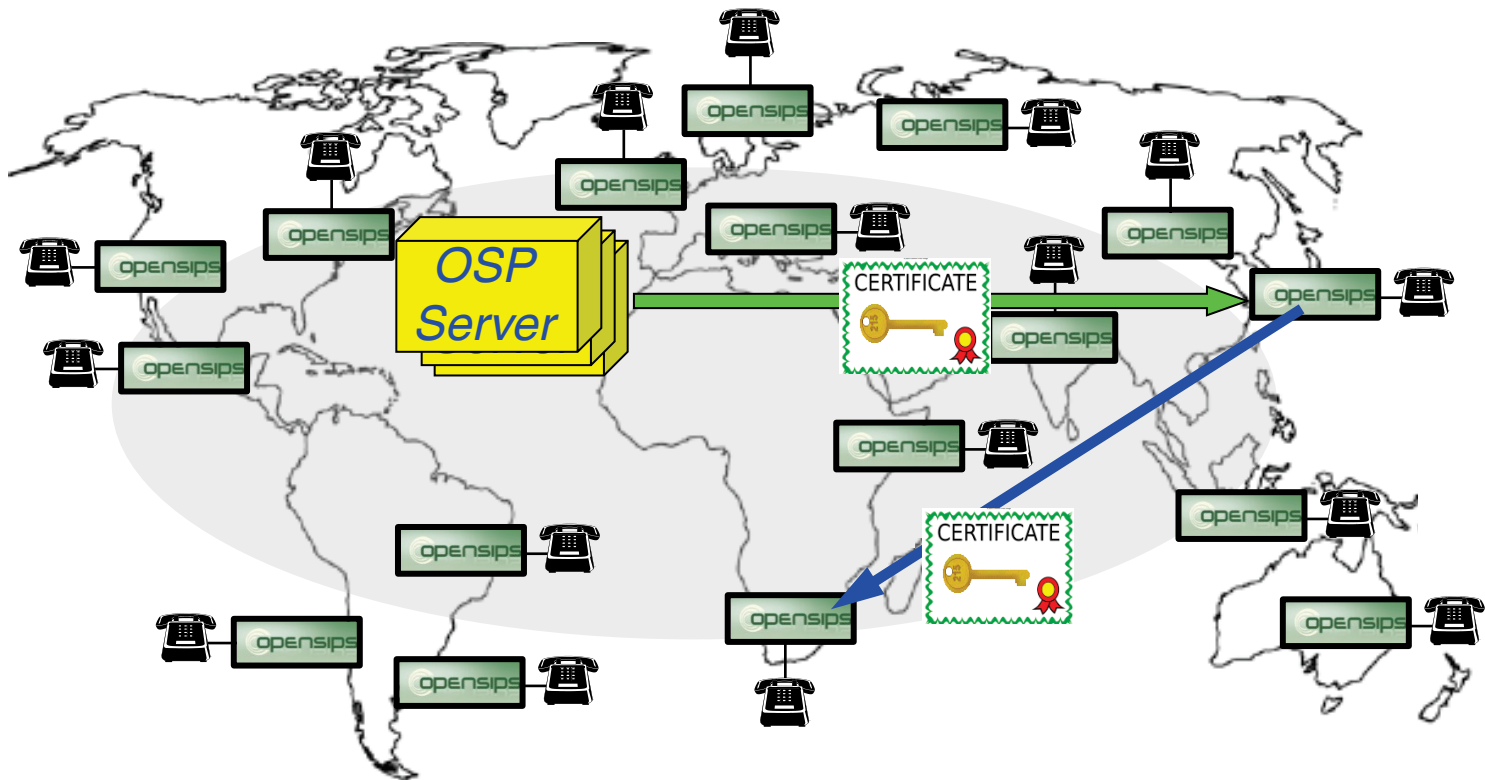
How OSP Peering Works

- OSP Server authenticates Source Peer and returns Authorization Response with token



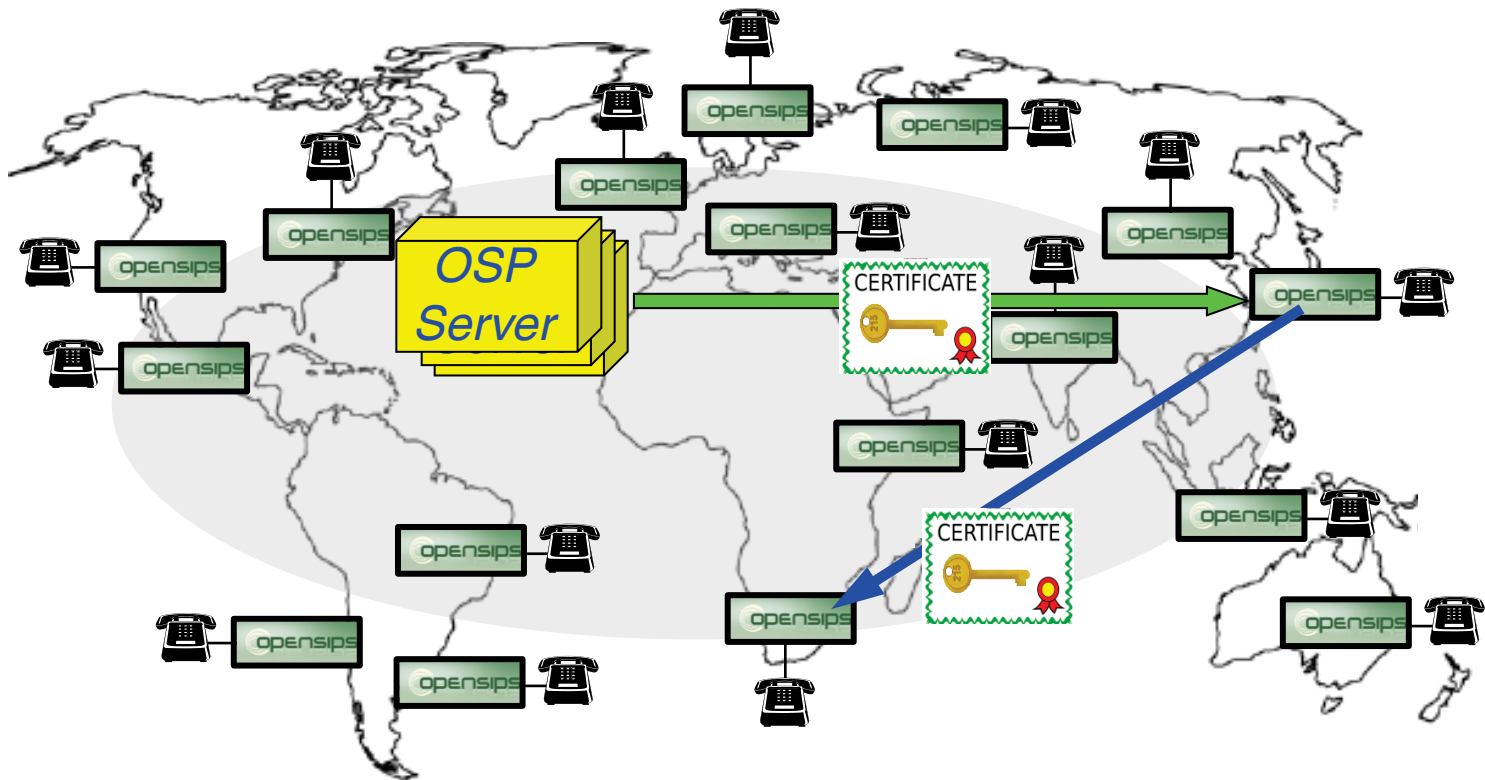
How OSP Peering Works

- Source Peer sends SIP INVITE with signed authorization token to Destination Peer



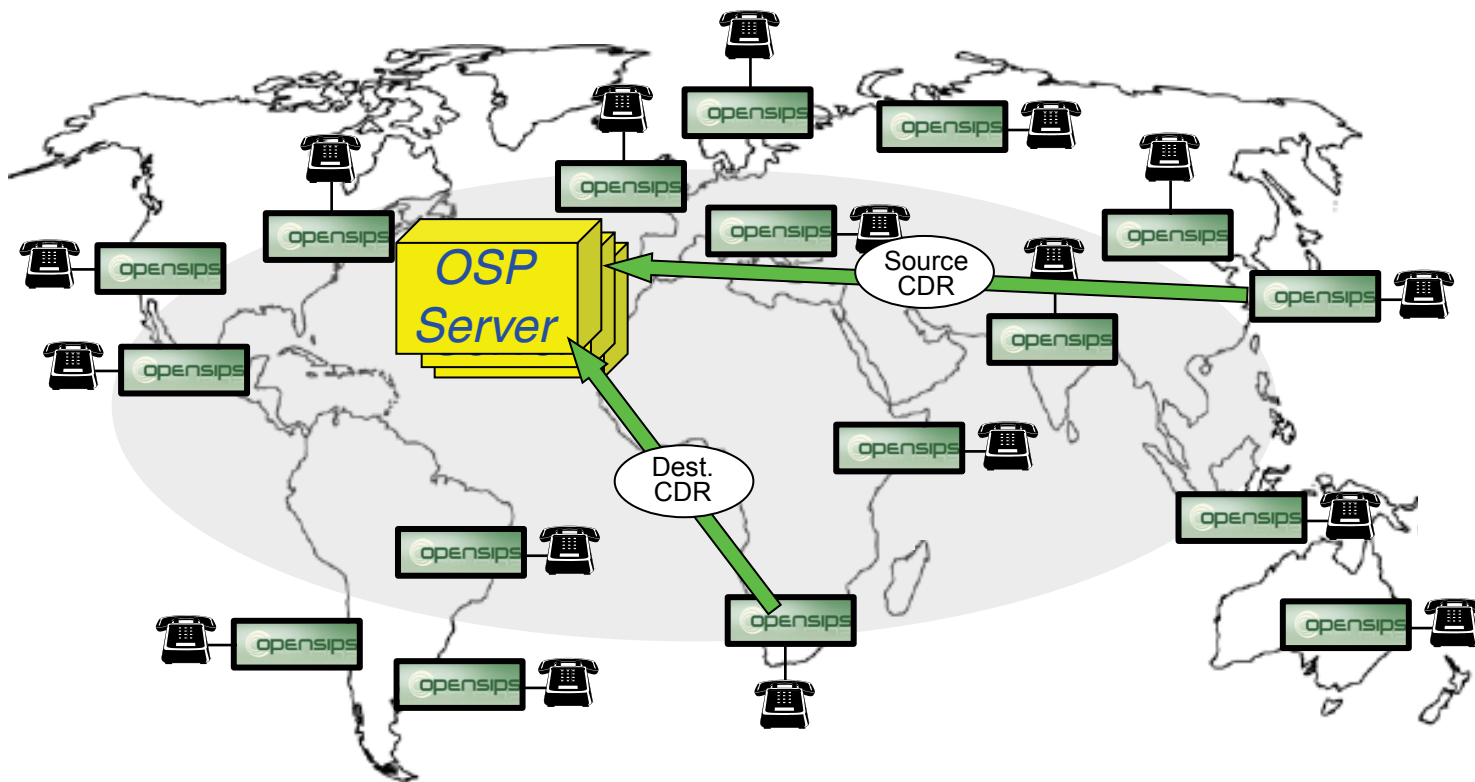
How OSP Peering Works

- Destination Peer validates token with OSP Server public key and completes the call



How OSP Peering Works

- When the call ends, Source and Destination Peers report CDRs to OSP Server



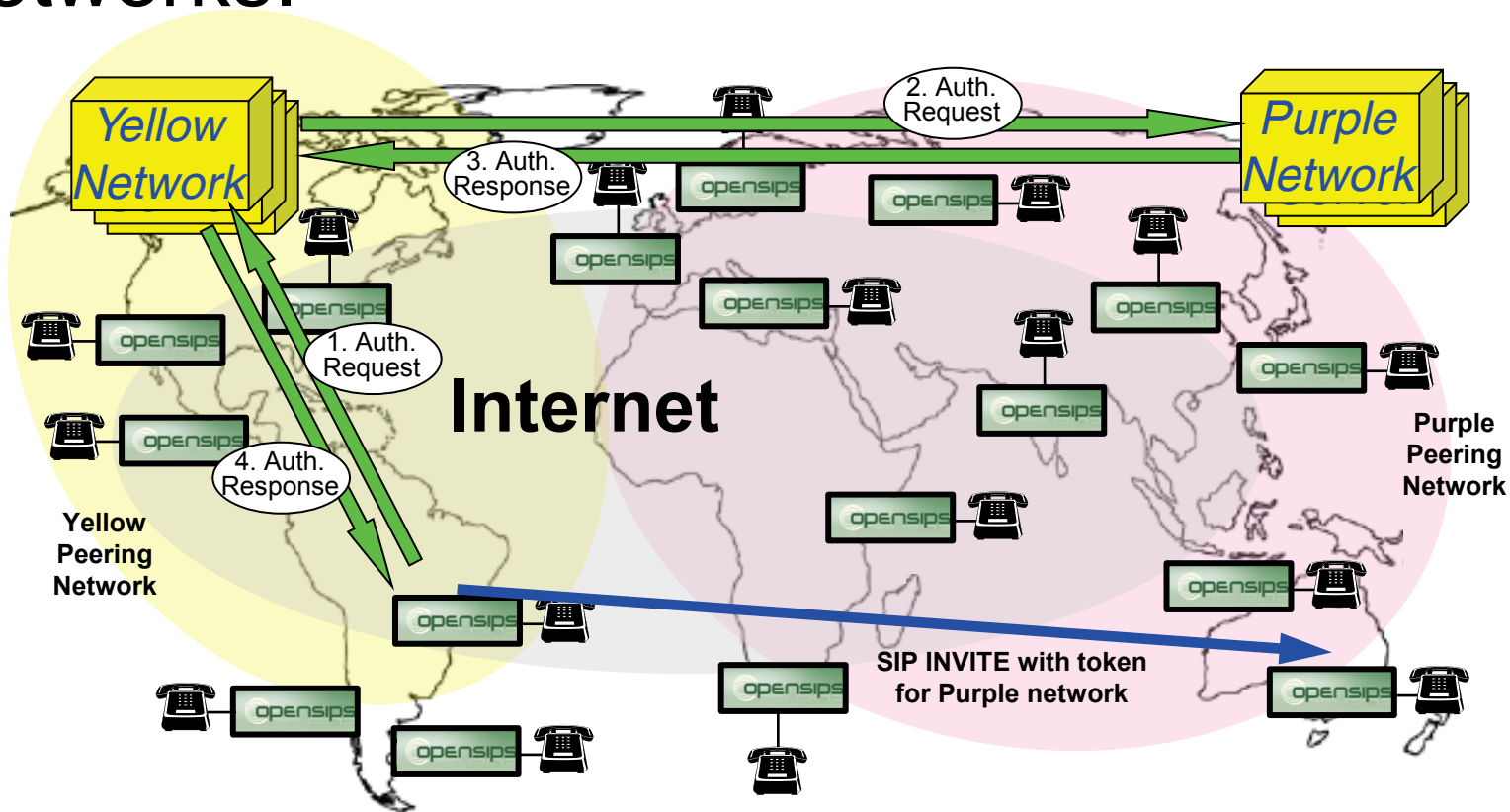
How OSP Peering Works

- Trusted Authority completes Billing and Payment Transaction



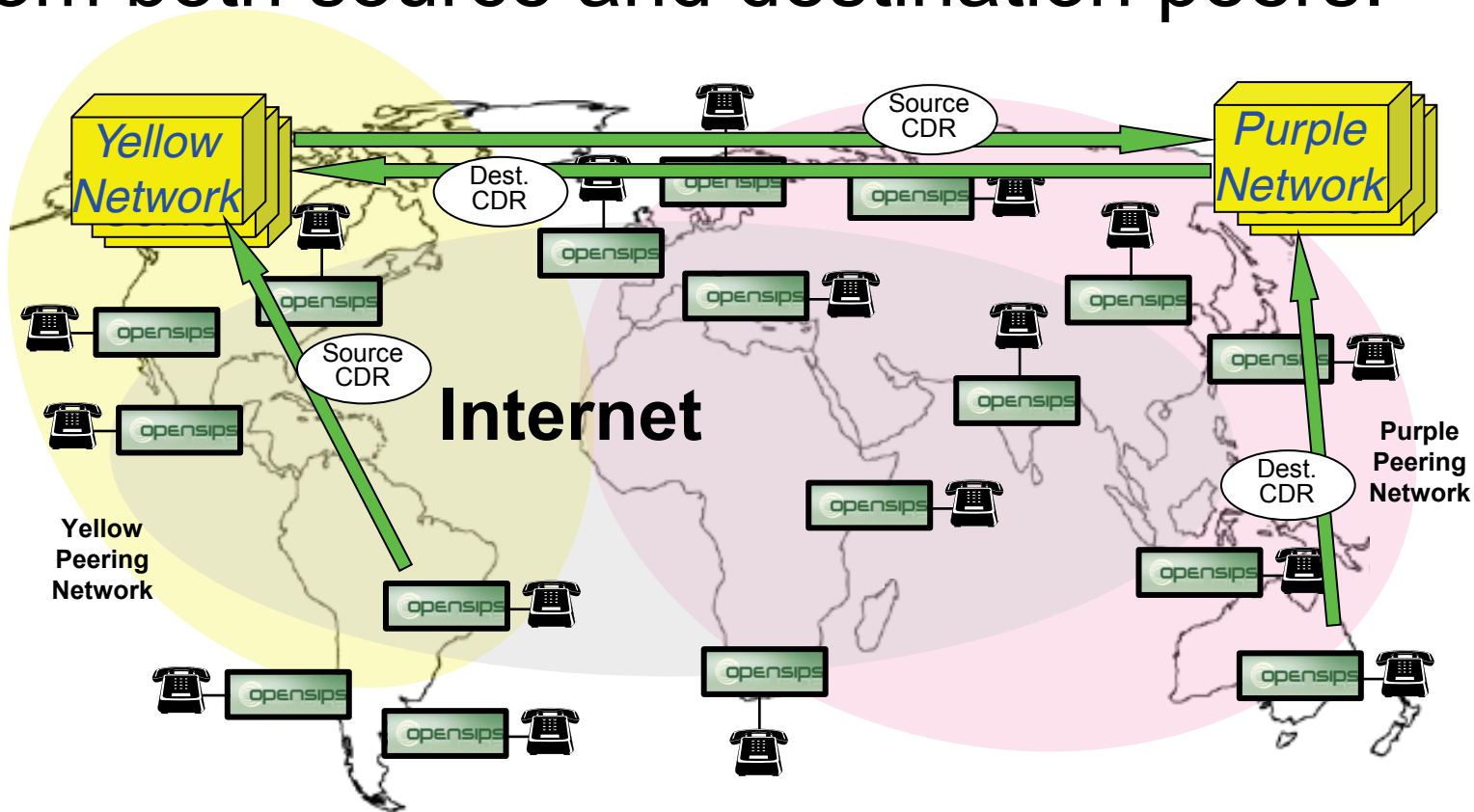
Tiered Peering

- Secure peering among multiple OSP networks.



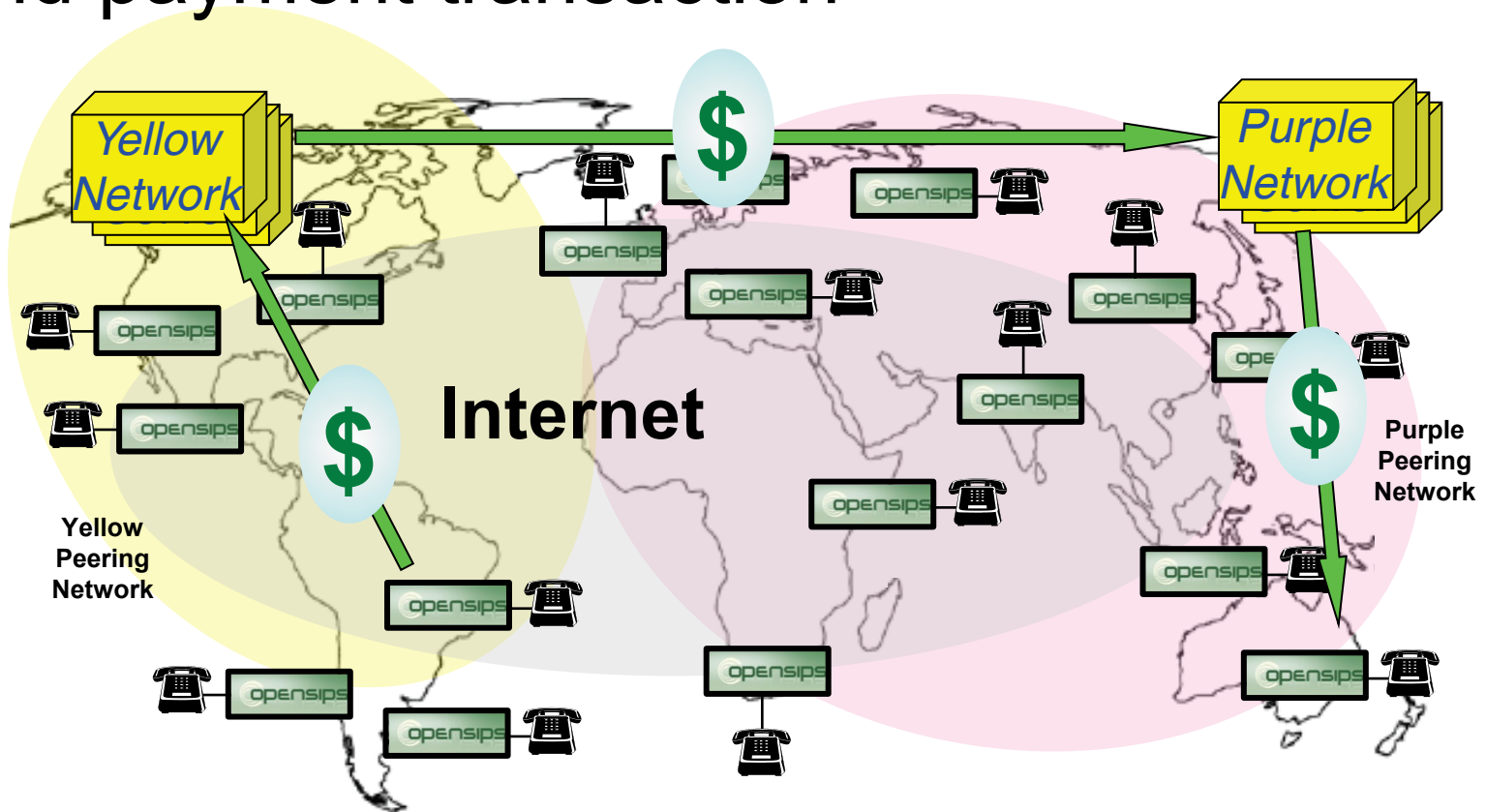
Tiered Peering CDR Reporting

- Top tier peering networks receive CDRs from both source and destination peers.



Tiered Peering Settlement

- Top tier peering networks complete billing and payment transaction



More About OSP

- OSP client library:
<http://sourceforge.net/projects/osp-toolkit/>
- OSP standard - ETSI TS 101 321 V4.1.1
<http://www.etsi.org>
- Download OSPrey – TransNexus OSP server
<http://www.transnexus.com/index.php/osprey/download-osprey>