Comcast STIR/SHAKEN Deployment Case Study
- The Approach, Progress, and Challenges

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We have followed ATIS-1000074 reference architecture to take advantage of IMS infrastructure:

- Using origination and termination triggers in SiFC to control service introduction and deployment,
- Integrating STI-AS/VS logic with a SIP frontend,
- Integrating and enhancing KPI and network monitoring with existing tools.

SIP, STIR, and SHAKEN...
Where there are stand-alone or pass-through service platforms, we employ an in-line SIP proxy solution:

- Fronting STI-AS/VS logic with an in-line SIP transaction stateful, dialogue state-less proxy,
- Integrating and enhancing KPI and network monitoring with existing tools.

More SIP, STIR, and SHAKEN…
Progress of STIR/SHAKEN Coverage

• Major factors affecting STIR/SHAKEN coverage:
  – Service platform and infrastructure upgrade
  – Peering and transit arrangement
  – TDM to SIP migration

• Working with top 15 direct peering entities, we will get to around 20% for residential subscribers; the coverage will be around 12% by Eo2019.

• Parallel multipronged efforts required to go beyond 20%
  – End-to-end signing and verification through transit carriers: ~15%
  – Remaining peering partners: ~5%
  – Number service providers/Aggregators: ~30%

• Cannot be verified: ~20%
  – International, spoofing, mis-configured, etc.

• TDM: ~10%
STIR/SHAKEN Deployment – Xfinity Voice Service Case Study

![Graph showing STIR/SHAKEN deployment statistics for different peers and categories.]

- Direct SIP %
- Transit SIP %
- TDM %

- Peer #1: 6.84%
- Peer #2: 4.01%
- Peer #3: 4.16%
- Comcast: 3.92%
- Peer #4: 2.67%
- Peer #5: 2.59%
- Peers #6-10: 8.44%
- Peers #11-15: 7.92%
- Beyond #15: 26.32%
- Aggregators: 22.02%
- Unverified: 0.00%
Challenges

• Infrastructure upgrades
  – Device/Network element compatibility on sizes and numbers of Identity header, and the resulted packet sizes
  – Stricter canonicalization requirements, especially in To header
  – Additional handling of new parameters, tags, and headers
  – Graceful introduction and ramping up of STI-AS/VS without disrupting existing services
  – TDM to SIP migration

• Peering processes
  – Quick start with self-signed roots while awaiting establishment of STI-PA/CA to scale
  – Careful planning of translation, routing, and network configurations
  – Pursuing both full signing/veriﬁcation solution and Do-No-Harm (passing through) solution for interop, and there is no cookie-cutter solution
  – Moving forward with corner cases left out like roaming, route advance, failover, etc.

• Consumer and enterprise awareness and education
  – To display or not to display, that is the question; and what to display!

• Beyond base SHAKEN: Div for retargeted calls, RPH for emergency calls, Delegate Certificates/LOA for enterprises, etc.
May the Force of STIR/SHAKEN Be With You!