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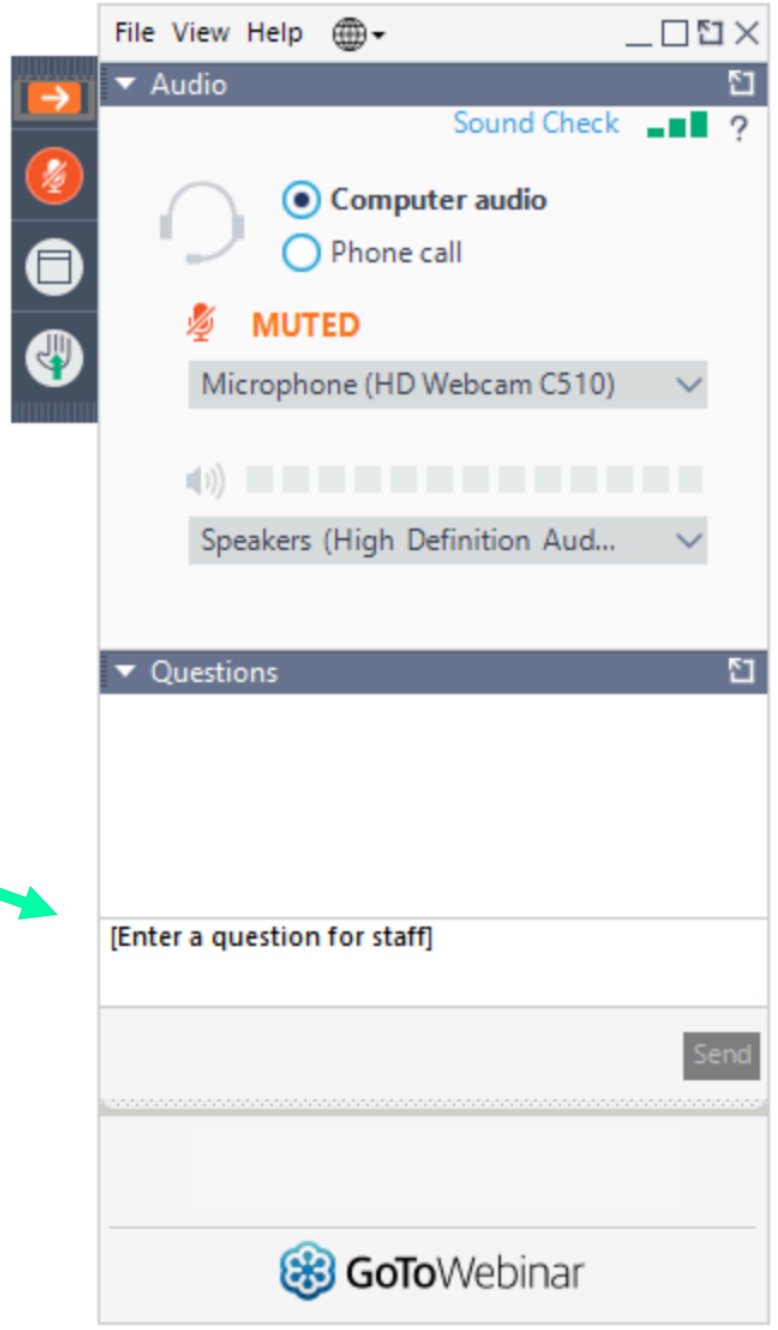
IP Toll-Free Call Routing:
The Future of Call Routing, Today

October 01, 2020

Webinar Control Panel

Submit your questions
in the Questions box and our moderator
will address your questions live.



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Your Presenters

KYLE BELCHER
Senior Product Manager

MICHAEL FAIN
Senior IP Solutions Engineer

JUSTEN DAVIS
Senior Director, Industry Relations & Public Policy

What we will cover today

1. How IP Routing Works in Toll-Free Today
2. IP Routing Groundwork
3. Maximize IP Routing using FQDN
4. Benefits
5. Future of IP
6. Policy Update
7. Q&A

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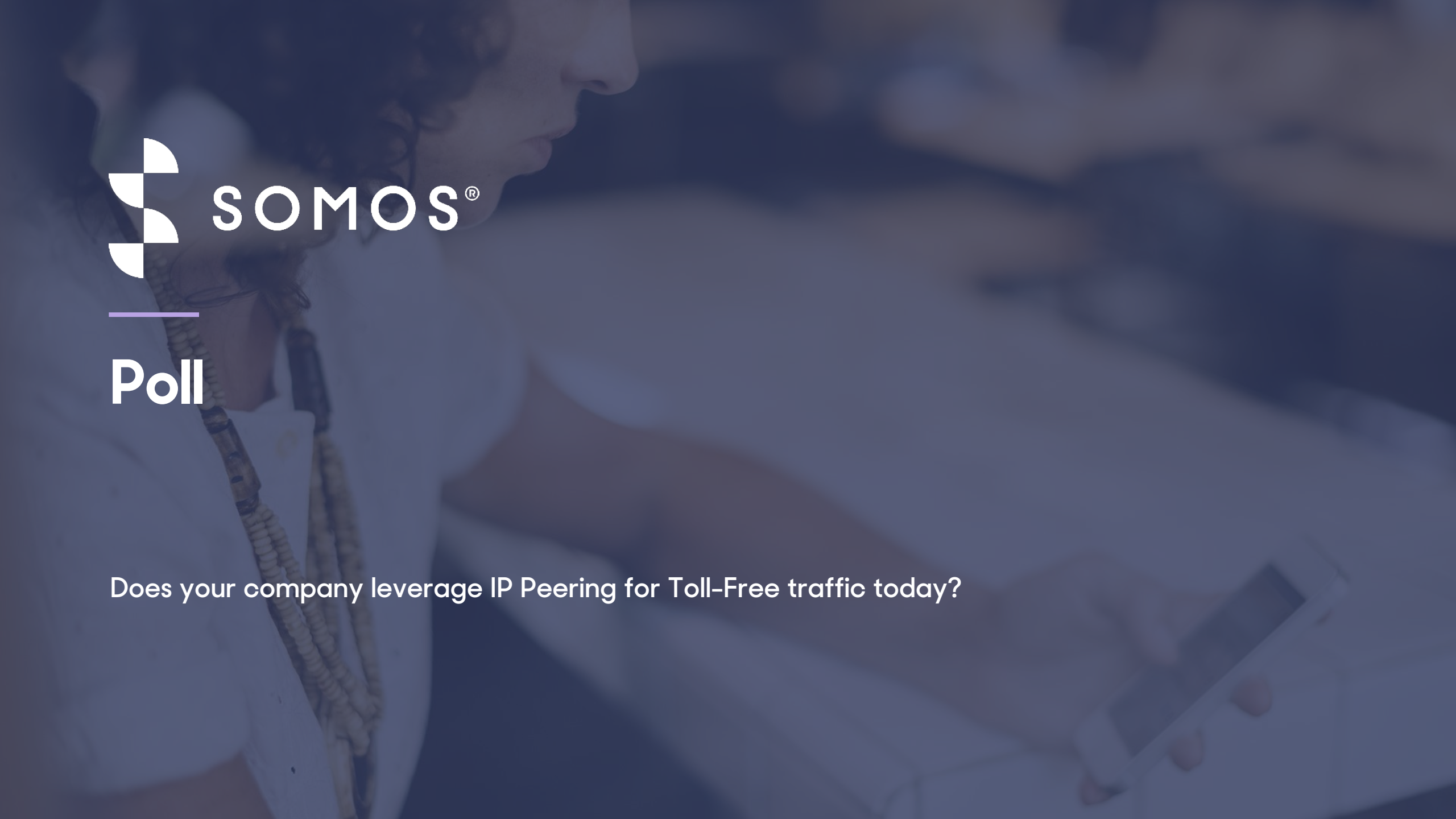

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Poll

Does your company leverage IP Peering for Toll-Free traffic today?

How IP Routing Works in Toll-Free Today

- Case by case
- FQDN vs Other options
- Why use FQDNs? Flexibility!
  - Ease of network deployment
  - Less capital and/or overhead
  - Better control over margins

Toll-Free IP Peering Groundwork

Identify new potential peering partner in RouteLink → Establish new peering agreement → Discover IP Endpoints → Send traffic directly to FQDN

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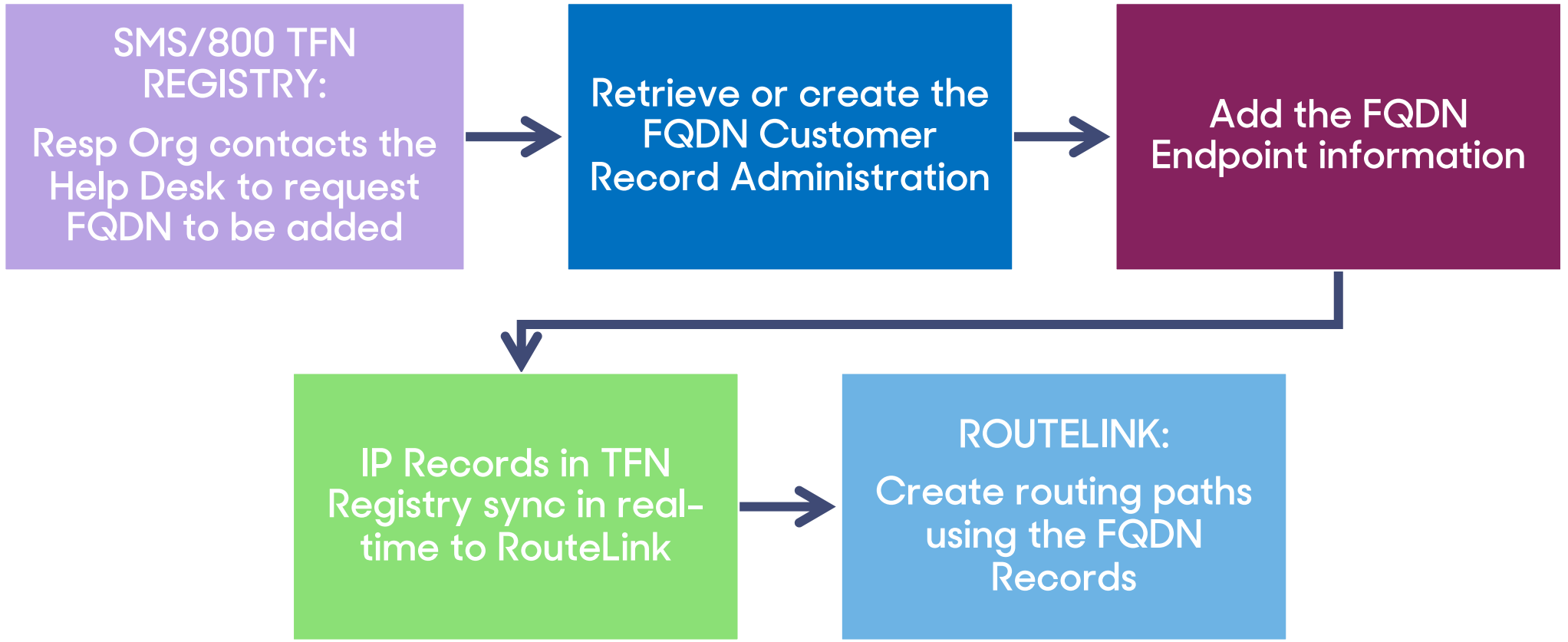
IP Routing Process



Maximize IP Routing using FQDN

- Utilizes dynamic instead of dedicated interface
- Reduces multi-hop and out of market interconnect
- Identify or establish interconnect to high volume Toll-Free terminators
- Allows for geographic and location-based resolution
- Simplifies resiliency, fail-over, redundancy and load balancing

Ease the Transition to IP

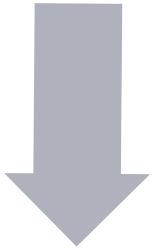
- Having competitive IP peering arrangements provides opportunities for network optimization

- IP peering simplifies routing
  - Directly sends traffic to your termination customer's provider
  - Reduces network usage by eliminating crank backs
  - Reduces the risk of network looping

- Using RouteLink as your source for FQDN routing endpoints allows you to easily identify new peering partners

Simplify STIR/SHAKEN Implementation – June 2021

Ensure your incoming 8YY avoids TDM conversions by receiving it from the source via a direct IP peering partner



Ensure the SHAKEN PASSporT is delivered

Eliminate the complexity of Out Of Band PASSporT recovery

Establish caller display trust by leveraging end to end IP

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Simple Disaster Recovery

- Route and receive all 8YY traffic via FQDN, simplifying routing and building in Disaster Recovery
  - DNS updates can take up to 24 hours | SMS/800 TFN Registry IP Routing updates instantly
  - Secondary FQDNs establish an alternative route
  - CIC based routing remains in place for additional failover
- Simple FQDN updates can change your incoming call path and location without ever contacting a carrier

Your Presenter

MICHAEL FAIN

Senior IP Solutions Engineer

Overview

Service Provider Call Flow

- IMS to IMS FQDN call

Enterprise Information

- Customer Connections

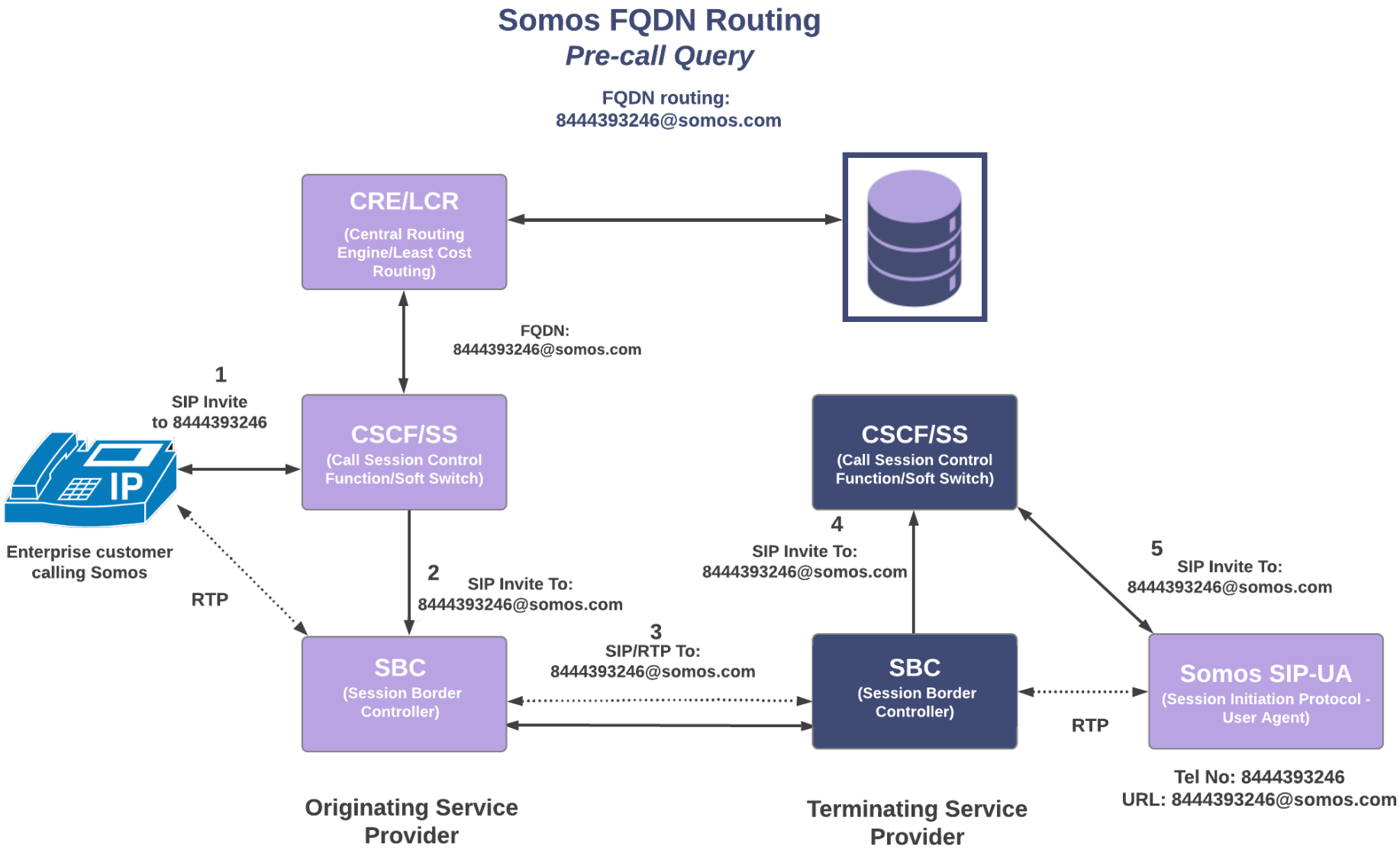
Consumer trust

- Originator is verified

NG911

- Location Information

Toll-Free FQDN via RouteLink Routing Data



Future of IP

- Modernization of routing
  - Less End of Life (EOL) legacy equipment dependency (TDM)
  - Simplification of routing constructs using web-based components from anywhere at anytime

- Industry is changing to allow Originating Service Providers (OSP's) and even enterprises to have near real-time control of data:
  - Detailed calling name
  - Originating caller verification
  - Rich Call Data (RCD)
  - Emergency services geodetic address information

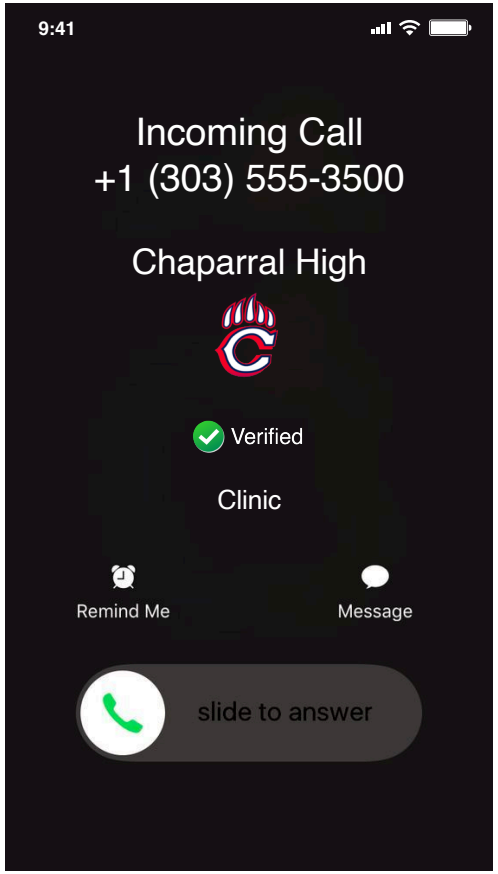
This can only be done via fully IP connections!

Future of IP

This display is what the consumer gets today

The following can be delivered with the call:

- Calling Name
- Originators Logo
- Call is verified
- Call purpose controlled by originator
- Future RCD enhancements



This detail will help your enterprise customers get their calls answered and is what the consumer wants to see!

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Future of Emergency Services

Next-Generation 911 (NG911)

- Location inserted by the OSP
- Location Information Server (LIS)
- Emergency calls will be delivered with PIDF-LO (RFC7459) geodetic based location information
- Only way to deliver is being IP to the ESInet NENA NG911 I3 Standards
- FQDN based ESInet

PIDF-LO Example

```
<civicAddress xml:lang="en-US"
    xmlns="urn:ietf:params:xml:ns:pidf:geopriv10:civicAddr"

xmlns:cae="urn:ietf:params:xml:ns:pidf:geopriv10:civicAddr:ext">
  <country>US</country>
  <A1>CA</A1>
  <A2>Sacramento</A2>
  <RD>Colorado</RD>
  <HNO>223</HNO>
  <cae:STP>Boulevard</cae:STP>
  <cae:HNP>A</cae:HNP>
</civicAddress>
```

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Your Presenter

JUSTEN DAVIS

Senior Director,
Industry Relations &
Public Policy

Industry and Policy Update

ATIS IPNNI, Signature-based Handling of Asserted information using toKENs (SHAKEN)

Signature-based Handling of Asserted information using toKENs (SHAKEN): Calling Name and Rich Call Data Handling Procedures

- Baseline accepted and under review ATIS IPNNI-2020-00025R007

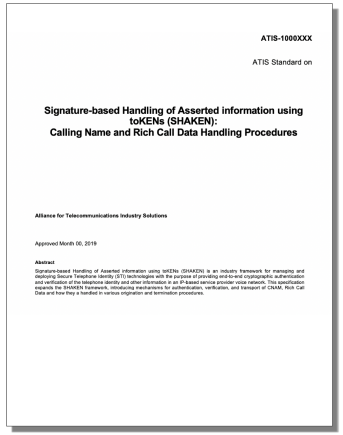
National Security / Emergency Preparedness Next Generation Network Priority Service (NS/EP NGN-PS) Session Initiation Protocol Resource Priority Header (SIP RPH) Signing using PASSporT Tokens

- Baseline accepted and under review ATIS IPNNI-2020-00021R003

Session Initiation Protocol (SIP) Resource-Priority Header (RPH) and Priority Header Signing In Support of Emergency Calling

- Baseline accepted and under review ATIS IPNNI-2020-00010R011

- For more information, visit www.atis.org


ATIS-1000XXX

ATIS Standard on

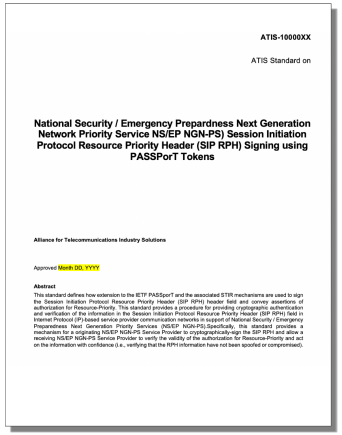
Signature-based Handling of Asserted information using toKENs (SHAKEN): Calling Name and Rich Call Data Handling Procedures

Alliance for Telecommunications Industry Solutions

Approved Month 00, 2019

Abstract

Signature-based Handling of Asserted information using toKENs (SHAKEN) is an industry framework for managing and deploying Secure Telephone Identity (STI) technologies with the purpose of providing end-to-end cryptographic authentication and verification of the telephone identity and other information in an IP-based service provider voice network. This specification expands the SHAKEN framework, introducing mechanisms for authentication, verification, and transport of CNAM, Rich Call Data and how they a handled in various origination and termination procedures.


ATIS-10000XX

ATIS Standard on

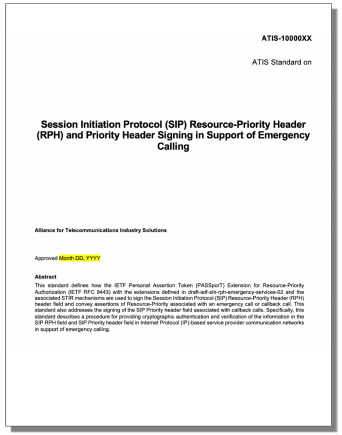
National Security / Emergency Preparedness Next Generation Network Priority Service NS/EP NGN-PS) Session Initiation Protocol Resource Priority Header (SIP RPH) Signing using PASSPorT Tokens

Alliance for Telecommunications Industry Solutions

Approved Month DD, YYYY

Abstract

This standard defines how extension to the IETF PASSporT and the associated STIR mechanisms are used to sign the Session Initiation Protocol Resource Priority Header (SIP RPH) header field and convey assertions of authorization for Resource-Priority. This standard provides a procedure for providing cryptographic authentication and verification of the information in the Session Initiation Protocol Resource Priority Header (SIP RPH) field in Internet Protocol (IP)-based service provider communication networks in support of National Security / Emergency Preparedness Next Generation Network Priority Service (NS/EP NGN-PS) calls. Specifically, this standard describes a mechanism for a originating NS/EP NGN-PS Service Provider to cryptographically-sign the SIP RPH and allow a receiving NS/EP NGN-PS Service Provider to verify the validity of the authorization for Resource-Priority and act on the information with confidence (i.e., verifying that the RPH information have not been spoofed or compromised).


ATIS-10000XX

ATIS Standard on

Session Initiation Protocol (SIP) Resource-Priority Header (RPH) and Priority Header Signing in Support of Emergency Calling

Alliance for Telecommunications Industry Solutions

Approved Month DD, YYYY

Abstract

This standard defines how the IETF Personal Assertion Token (PASSporT) Extension for Resource-Priority Authorization (IETF RFC 8443) with the extensions defined in draft-ietf-stir-rph-emergency-services-02 and the associated STIR mechanisms are used to sign the Session Initiation Protocol Resource Priority Header (SIP RPH) header field and convey assertions of Resource-Priority associated with an emergency call or callback call. This standard also addresses the signing of the SIP Priority header field associated with callback calls. Specifically, this standard describes a procedure for providing cryptographic authentication and verification of the information in the SIP RPH field and SIP Priority header field in Internet Protocol (IP)-based service provider communication networks in support of emergency calling.

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Industry and Policy Update

Further standardization and use of FQDN within call routing

Addition of FQDN field within LERG™ - reference ATIS Testbeds Focus Groups – Test Plans and Observed Results (ATIS-I-0000067)

North American Numbering Council (NANC) Nationwide Number Portability Working Group (NNP WG)

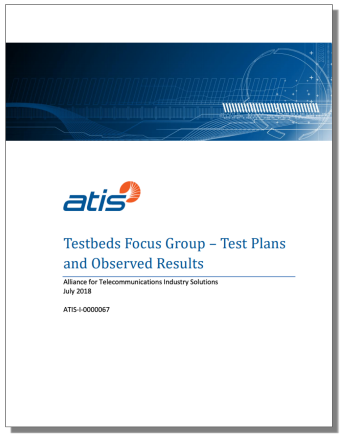
- Report to the NANC on Nationwide Number Portability - June 29, 2020
- Addition of FQDN in support of IPLRN within LERG™ or alternate data source

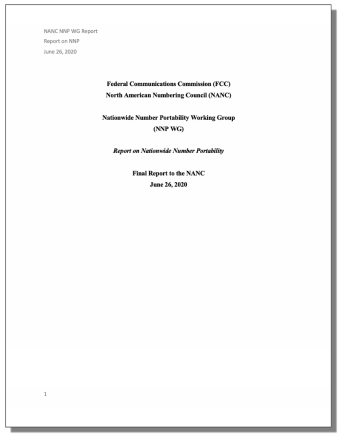
NANC, Interoperable Video Calling Working Group (IVC WG)

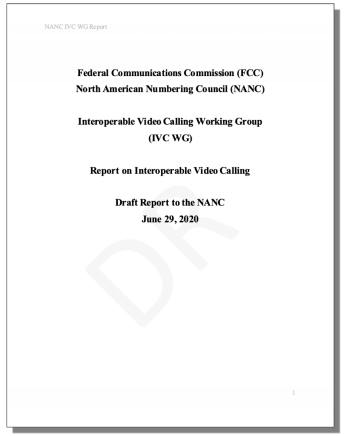
North American Numbering Council (NANC) Interoperable Video Calling Working Group (IVC WG)

- Draft Report to the NANC on Interoperable Video Calling – June 29, 2020

- For more information, visit www.atis.org and nanc-chair.org







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Access IP Routing Today!

SMS800 TFNRegistry®

- https://tfnregistry.somos.com
- Login with current SMS/800 TFN Registry credentials

RouteLink®

- https://routelink.somos.com/login.html
- Login with current RouteLink credentials

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Join the IP Routing Beta Program Today!

Be a part of leading the digital revolution that is shaping the future of Toll-Free IP Routing!

Setup a one-on-one session with us to learn more!

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iprouting@somos.com

RouteLink subscriber:
routelink@somos.com

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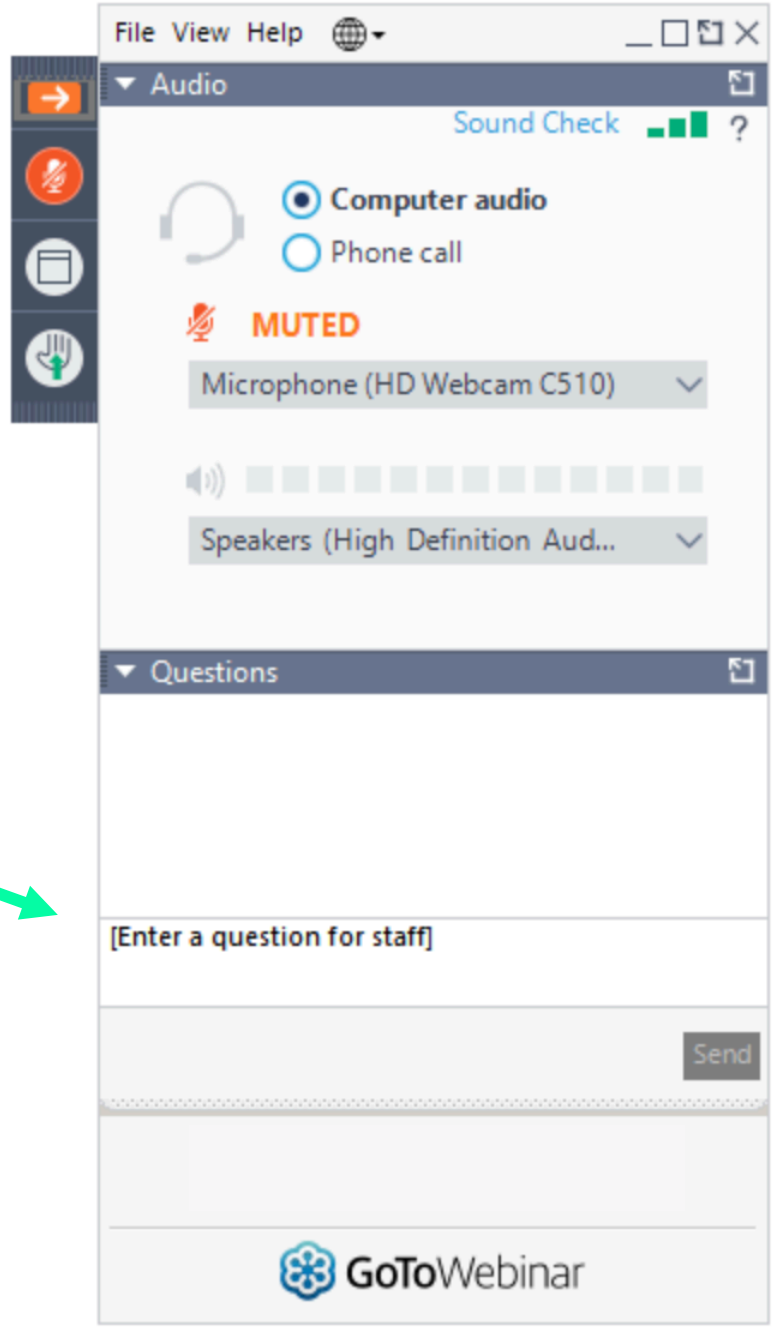

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