ATIS Robocalling Testbed Report

AGENDA

- What is the ATIS Robocalling Testbed?

- Testbed participation status and results summary
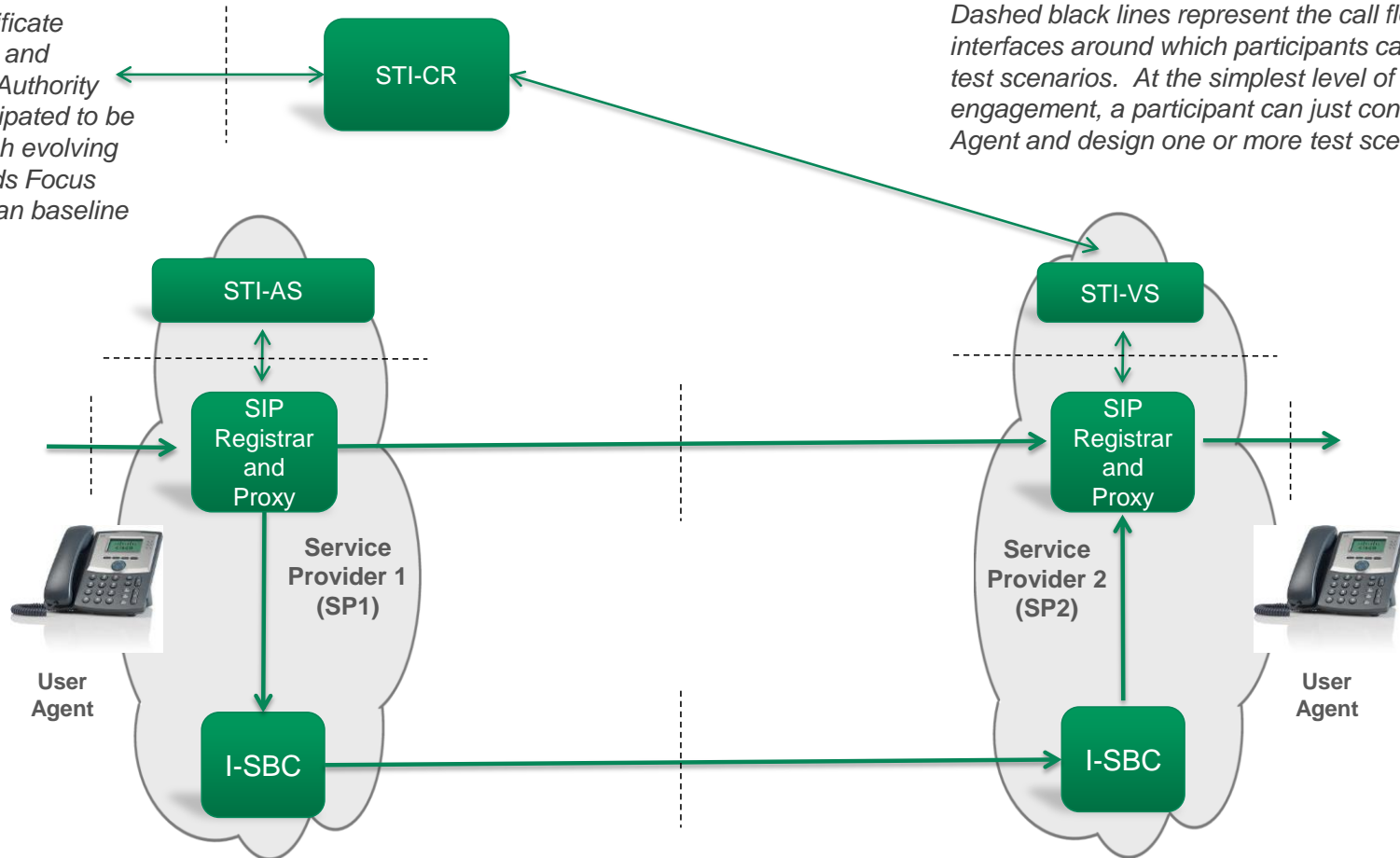
- How can you participate?

WHAT IS THE ATIS ROBOCALLING TESTBED?

- Established in response to ATIS task from Robocall Strike Force Report (10/26/2016) and as an outgrowth of work underway at the ATIS Testbeds Focus Group

- Virtualized industry test platform to help service providers, suppliers and third parties verify implementations of new ATIS SHAKEN framework

- Support testing per applicable ATIS Testbeds Focus Group document(s), currently "Secure Telephone Identity (STI) Protocol Test Plan" (TLT-2017-00003) and Authentication and Verification Services

- Provide non-preferential participant access

- Open to both ATIS members and qualified non-ATIS members

- Support scheduled testing 9:00 AM – 5:00 PM Eastern Time, Monday through Friday

- Testbed operated by Neustar:
  - ❑ Physical lab environment to support remote testing
  - ❑ Lab support resources
  - ❑ Applicable documentation to support testing
  - ❑ Dedicated e-mail for Technical Support requests

ATIS ROBOCALLING TESTBED SNAPSHOT

Broader Certificate Management and Governance Authority aspects anticipated to be added through evolving ATIS Testbeds Focus Group test plan baseline document(s)

Dashed black lines represent the call flow interfaces around which participants can design test scenarios. At the simplest level of engagement, a participant can just connect a User Agent and design one or more test scenarios.

STI-CR

STI-AS

STI-VS

SIP Registrar and Proxy

SIP Registrar and Proxy

Service Provider 1 (SP1)

Service Provider 2 (SP2)

User Agent

User Agent

I-SBC

I-SBC

CURRENT ATIS ROBOCALLING TESTBED CAPABILITIES

- **Caller Authentication and Verification**
  - ❑ Authentication Service (STI-AS) instance per evolving draft standards
  - ❑ Verification Service (STI-VS) instance per evolving draft standards
  - ❑ Both accessed via documented REST APIs
- **Certificate Authority**
  - ❑ EJBCA instance (e.g., signing and storing certificates from Certificate Signing Requests)
  - ❑ Integrated with STI-AS instance above and supports any STI-VS as a public certificate repository (STI-CR)
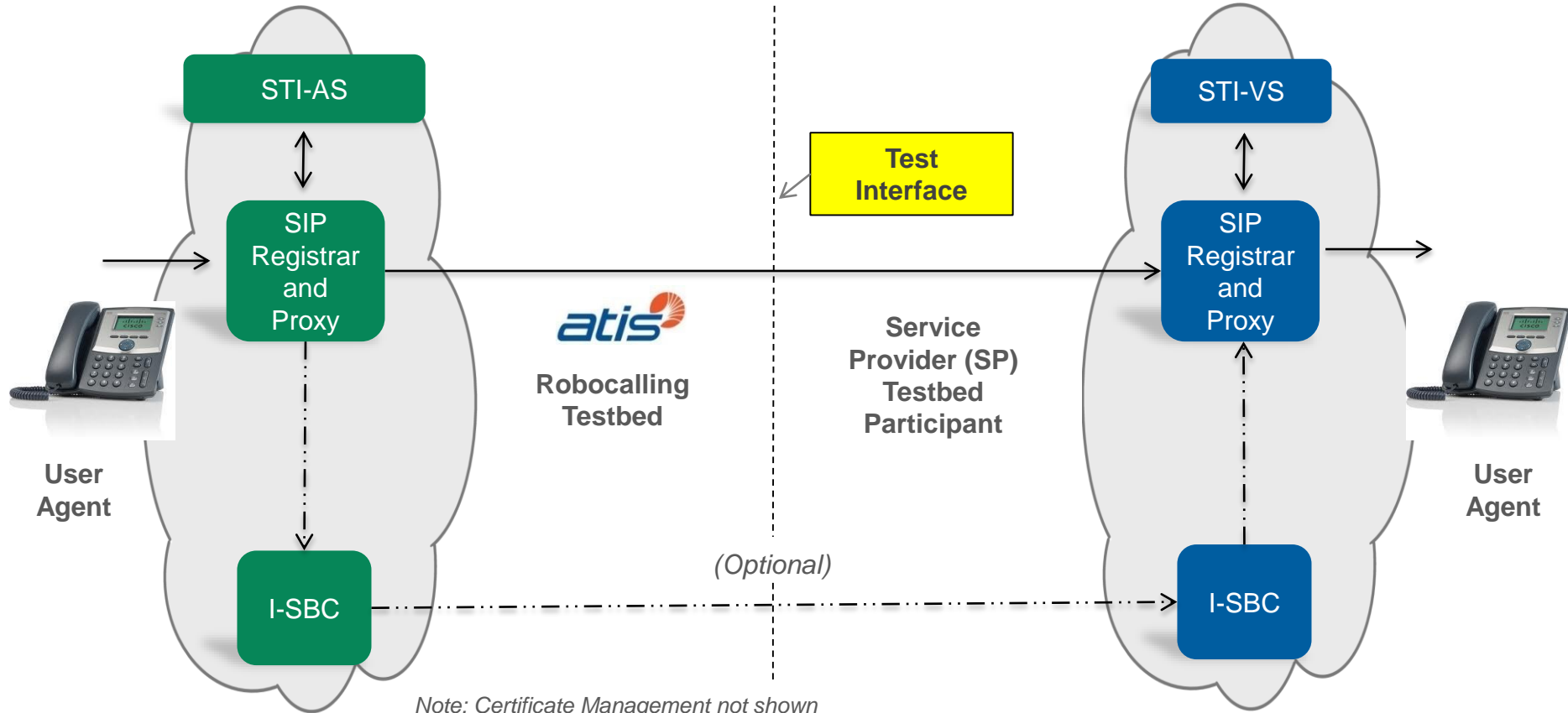- **Access and Network infrastructure**
  - ❑ Phones
  - ❑ Asterisk and FreeSWITCH PBXs (SIP Proxies)
  - ❑ Oracle/Acme SBCs (simulating inter-carrier connectivity)
  - ❑ Access Firewall (public Internet, whitelisting IPs)

CURRENT ATIS ROBOCALLING TESTBED FOCUS

- Validate SHAKEN implementation and cross-provider interoperability

- Focus entails:
  - ❑ Correct implementation of SHAKEN functions:
    - ✓ Authentication Service – generate PASSporT token and SIP Identity header
    - ✓ Insert and correctly transport SIP Identity header in signalling
    - ✓ Verification Service – correctly remove and process PASSporT token
  - ❑ Proper error handling of STI-AS and STI-VS, as injected by Testbed, including defined SIP response codes and reason phrases:
    - ✓ Malformed Identity header or PASSporT token
    - ✓ Expired STI certificate
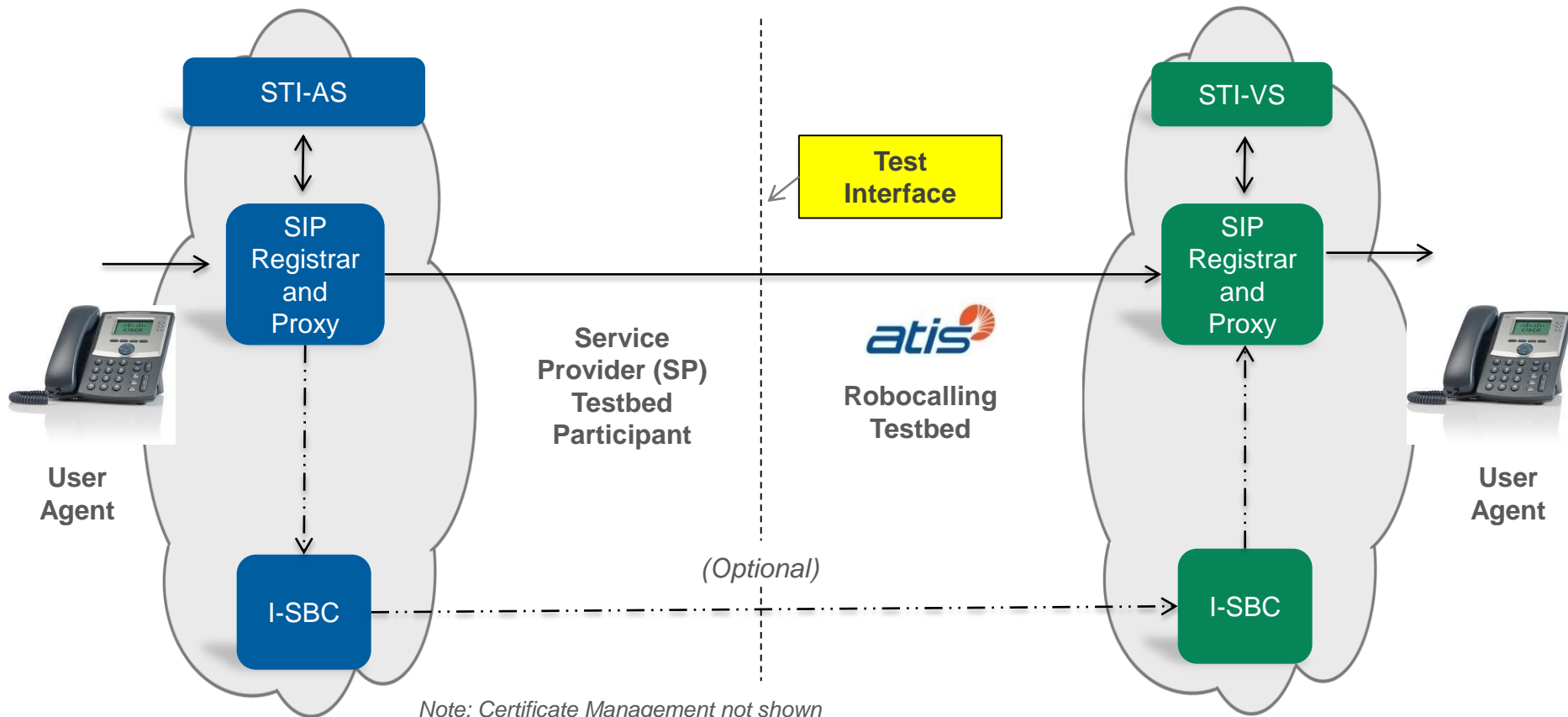   - ✓ Invalid STI certificate

TEST SCENARIO #1
TESTBED SIMULATING SP AND ORIGINATING CALLS WITH STI-AS

STI-AS
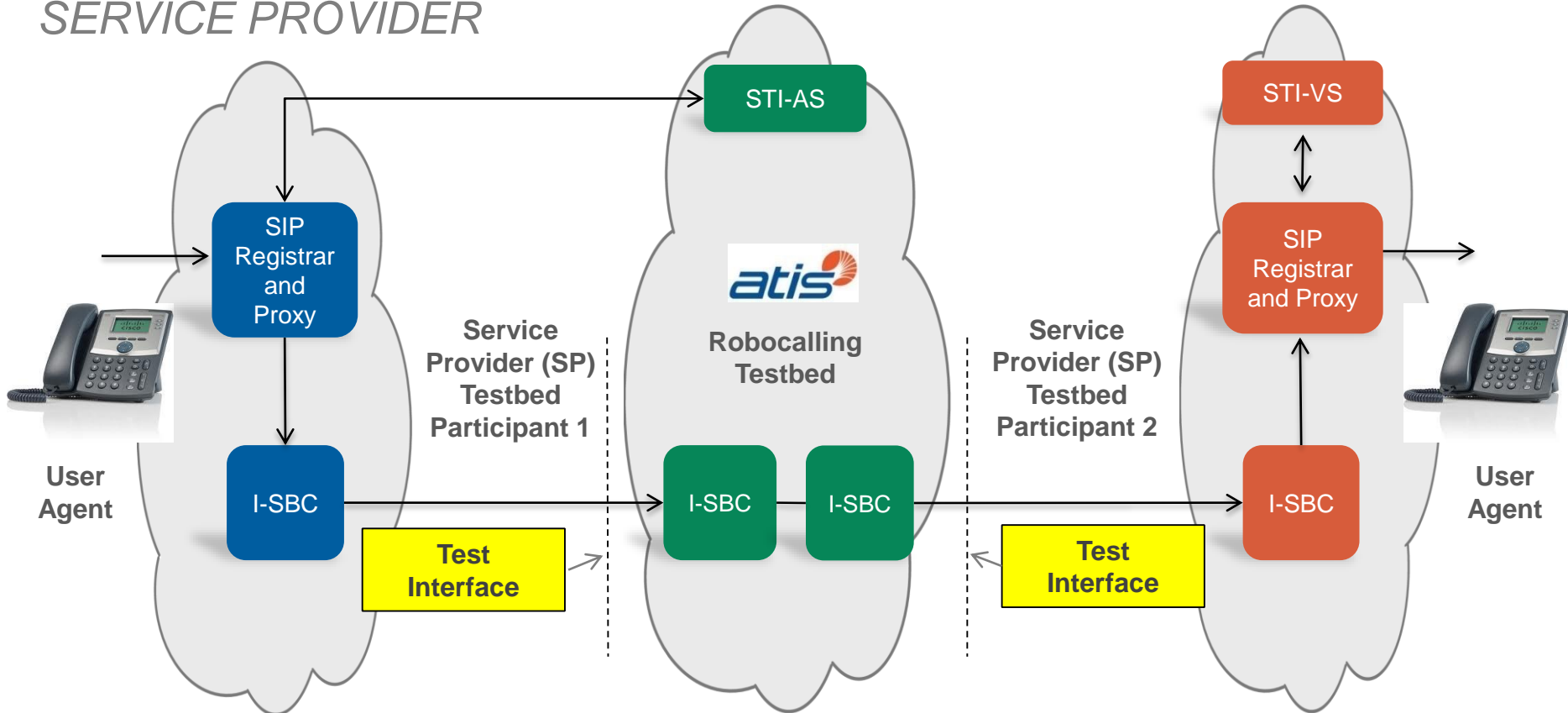
SIP Registrar and Proxy

Test Interface

STI-VS

SIP Registrar and Proxy

Robocalling Testbed

Service Provider (SP) Testbed Participant

User Agent

I-SBC

(Optional)

I-SBC

User Agent

Note: Certificate Management not shown

TEST SCENARIO #2
TESTBED SIMULATING SP AND TERMINATING CALLS WITH STI-VS

STI-AS

STI-VS

Test Interface

SIP Registrar and Proxy

SIP Registrar and Proxy

ATIS

Service Provider (SP) Testbed Participant

Robocalling Testbed

User Agent

User Agent

(Optional)

I-SBC

I-SBC

Note: Certificate Management not shown
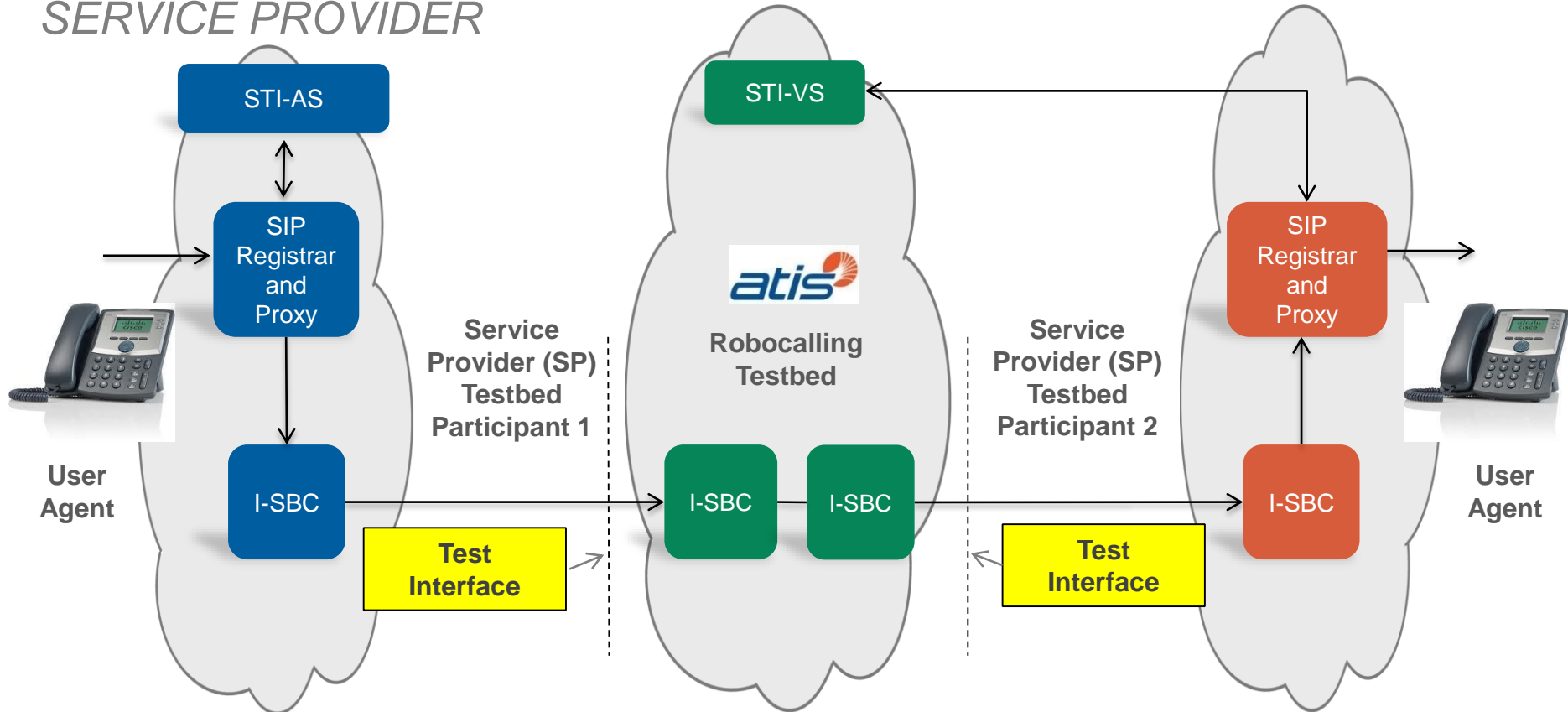
TEST SCENARIO #3
TESTBED PERFORMING STI-AS AND SIMULATING A TRANSIT SERVICE PROVIDER

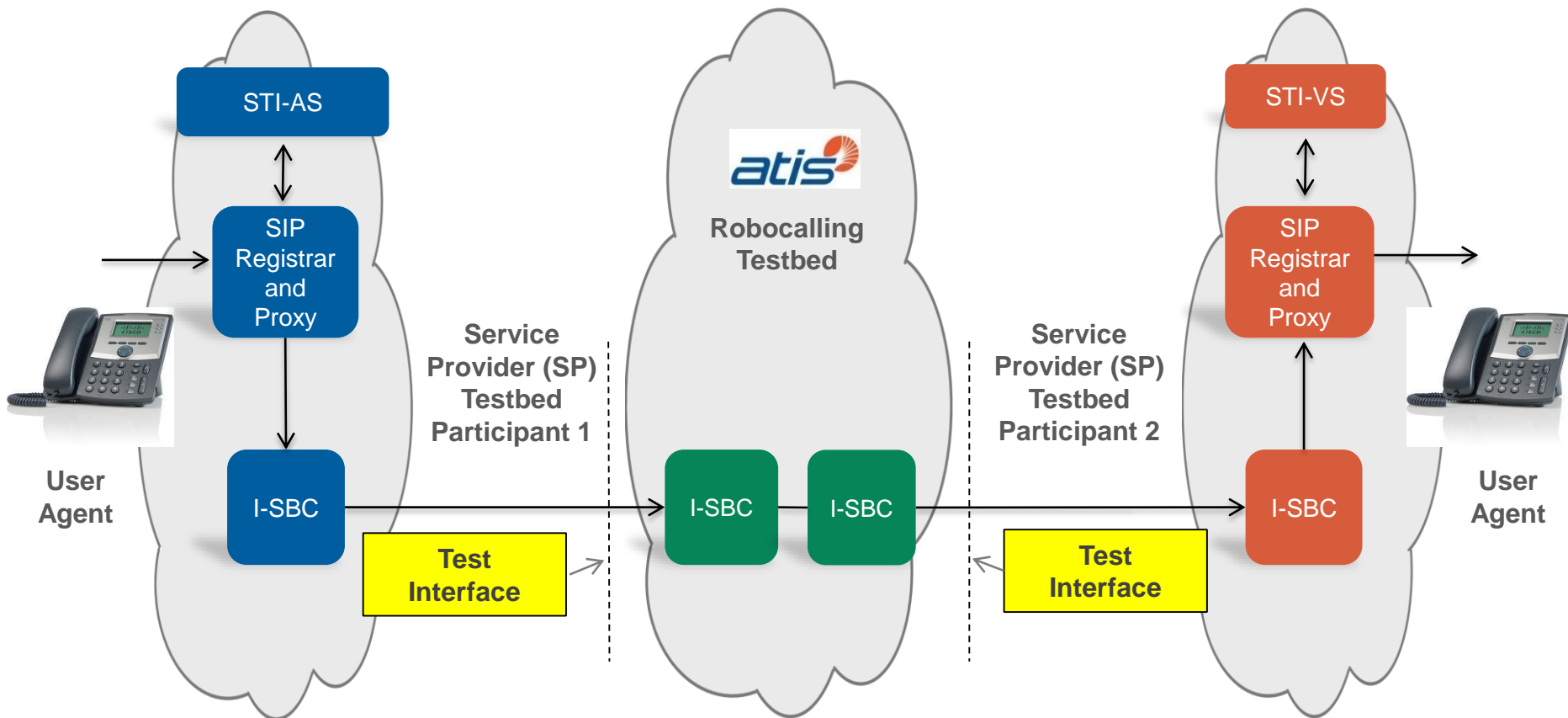*Note: Certificate Management not shown*

TEST SCENARIO #4
TESTBED PERFORMING STI-VS AND SIMULATING A TRANSIT SERVICE PROVIDER

STI-AS

STI-VS

SIP Registrar and Proxy

Service Provider (SP) Testbed Participant 1

Robocalling Testbed

Service Provider (SP) Testbed Participant 2

SIP Registrar and Proxy

User Agent

I-SBC

I-SBC

I-SBC

I-SBC

User Agent

Test Interface

Test Interface

Note: Certificate Management not shown

TEST SCENARIO #5
TESTBED SIMULATING A TRANSIT SERVICE PROVIDER

STI-AS

SIP Registrar and Proxy

I-SBC

User Agent

Service Provider (SP) Testbed Participant 1

Test Interface

ATIS

Robocalling Testbed

I-SBC   I-SBC

Service Provider (SP) Testbed Participant 2

Test Interface

STI-VS

SIP Registrar and Proxy

I-SBC

User Agent

Note: Certificate Management not shown

ATIS ROBOCALLING TESTBED TEST RESULTS

- All test results protected under the ATIS Testbeds Focus Group NDA

- Anonymized and aggregated results will be published by ATIS

- Participants can test implementations through the ATIS Robocalling Testbed to ensure interoperability and facilitate preparation of aggregate test results

- Bilateral testing outside of ATIS Robocalling Testbed is also possible and will be included in the overall results (assuming it is conducted under the Testbeds Focus Group NDA and in accordance with Testbeds Focus Group test plans)

ATIS ROBOCALLING TESTBED TESTING PROGRESSION

**Testing
Observers**

**Testing
Participants**

**Testbed Testing To Be
Scheduled/Being
Scheduled/In-Progress**

Testing Conducted

**CenturyLink,
Charter,
Cox,
Ericsson,
Inteliquent,
Nokia,
Sprint,
Verizon**

**AT&T,
Bandwidth.com,
Comcast,
Frontier,
Google,
InCharge Systems,
Metaswitch,
OEC,
PrivacyStar,
SecureLogix,
Somos,
TransNexus**

**2 Vendors
2 Service Providers**

**3 Vendors
1 Service Provider**

ATIS ROBOCALLING TESTBED TESTING TO DATE

- Test cases based on core subset of (living) ATIS "STI Protocol Test Plan" document

- Address key interoperability areas per published ATIS-1000074 SHAKEN standard (specifically, end-to-end functional tests)

- Experience to date suggests more than one testing session required to complete end-to-end functional testing (e.g., offline review of call traces)

- Each collaborative testing session typically lasts about two hours with call traces and results shared in near-real-time to facilitate troubleshooting

- Typical issues encountered:
  - Setup related – mostly configurations on various elements and firewall rules for access
  - Error handling – SIP response codes not being generated and relayed back to the originator correctly along with defined reason strings
  - Implementation – "Identity" header generation software defect
  - Standards interpretation:
    - Assumed ordering of header and claim attributes in the PASSporT object
    - Telephone number canonicalization as per draft RFC 4474bis-16 (section 8.3)

- On completion, Neustar and test participant(s) collaborate on test results summary

HOW TO PARTICIPATE IN THE ATIS ROBOCALLING TESTBED?

- Engage on-line at: https://www.neustar.biz/atis-testbed/index.php
- Review, sign and return following two prerequisite documents:
  - ❏ ATIS Confidentiality Agreement
  - ❏ Neustar Robocalling Testbed Use Policy
- Review "ATIS Robocalling Testbed Overview" presentation
- Request and review "ATIS Robocalling Testbed Connectivity Guidelines"
  - ❏ Illustrates representative test scenarios
  - ❏ Identifies technical information that a participant needs to provide for testbed access
  - ❏ Provides technical information that a participant needs to configure and test
  - ❏ Provides information on how an ATIS member "observes" testing
- Engage through Technical Support link (robocall-testbed-support@neustar.biz)

SUMMARY

- ATIS Robocalling Testbed launched as outgrowth of work underway at the ATIS Testbeds Focus Group and Robocall Strike Force to promote SHAKEN framework industry testing and broad adoption

- Neustar partnered with ATIS to operate Testbed in support of ATIS and non-ATIS member participants

- Interest in testing ramping up (20 companies signed up)
  - ❑ Metaswitch, TransNexus, one other vendor and one service provider have completed SHAKEN interop testing
  - ❑ Additional companies being scheduled or have committed to test in 4Q
  - ❑ Testing likely to continue into 2018 and potentially be expanded for automated certificate management (ATIS-1000080)
- For further questions, please contact Jim McEachern (ATIS)