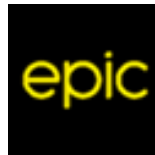


Technical Framework Document

For the initial interconnection of the telephony networks of



and

[Third Party logo]

Version:<version>

Originator	<Originator Name>	<Date>
Checked	<Checker Name>	<Date>
Approved	<Approver Name>	<Date>

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1 Introduction

This draft version of the Technical Framework Document presents the Epic network information and requirements for interconnection with [Third Party Name]. As indicated, it is a draft version, and details in this document may differ from the final commercial agreements.

The purpose of this document is to outline the interconnection technical details, the necessary contact information, and the selection of SIP interoperability tests and CDR verification tests.

The interconnection between Epic and [Third Party Name] will be facilitated by both the Epic network and the [Third Party Name] network.

The connection will utilize Session Border Controllers (SBC) with Session Initiation Protocol (SIP) signalling on dedicated IP interconnections.

1.1 Revision history

Date	Version	Name	Changes
<Date>	1	Initial draft	

2 Contact points

2.1 Commercial

Produced by:		<Third Party Logo>
Name:		
Email address:		
Phone:		

2.2 Technical Implementation and Testing

Produced by:		<Third Party Logo>
Name:		
Email address:		
Phone:		

2.3 Voice

Produced by:		<Third Party Logo>
Name:		
Email address:		
Phone:		

2.4 Transport & IP Network

Produced by:		<Third Party Logo>
Name:		
Email address:		
Phone:		

2.5 NOC (24 / 7)

Produced by:		<Third Party Logo>
Name:		
Email address:		
Phone:		

2.6 First Escalation

Produced by:		<Third Party Logo>
Type:	Commercial	
Name:		
Email address:		
Phone:		

Type:	Core Network	
Name:		
Email address:		
Phone:		

Type:	Transport / IP Network	
Name:		
Email address:		
Phone:		

Type:	NOC	
Name:		
Email address:		
Phone:		

3 Interconnection diagrams

3.1 Logical Connectivity diagram

<Connectivity Diagram goes here>

3.2 Transmission diagram

<Transmission Diagram goes here>

3.3 <Third Party Name> Transmission Path

<Third party Transmission Diagram goes here>

4 VoIP architecture

The interconnection between Epic and [Third Party Name] VoIP networks is based upon a SIP profile that supports the standards and RFCs indicated below:

	epic	<Third Party Name>
3GPP TS 29.163 ISUP to SIP Mapping	Supported	
RFC 2327 SDP	Supported	
RFC 2833 RTP Payload for DTMF Digits, Telephony Tones and Telephony Signals	Supported	
RFC 2976 SIP INFO Method	Supported	
RFC 3311 SIP UPDATE Method	Supported	
RFC 4566 Session Description Protocol	Supported	
RFC 2806 URLs for telephone calls	Supported	
RFC 3261 (V2) Base SIP RFC	Supported	
RFC 3262 PRACK	Supported	
RFC 3263 Session Initiation Protocol (SIP): Locating SIP Servers	Supported	
RFC 3264 Answer Offer model	Supported	
RFC 3323 SIP Privacy	Supported	
RFC 3324 Short Term Requirement for Network Asserted Identity	Supported	
RFC 3325 Trusted Private Networks and SIP	Supported	
RFC 3824 Using E.164 numbers with SIP	Supported	
RFC 3840 Indicating user agent capabilities	Supported	
RFC 4028 Session Timer	Supported	
SIP Option Method as keepalive	Supported	

4.1 SIP Signalling Profile

4.1.1 Epic – SIP Peering Endpoints

	SBC Site #1	SBC Site #2
Proxy Priority		
Equipment Vendor		
Type and Model		
Software Version		
Signalling IP address(s)		
Signalling Port(s)		
Media IP address(s)		
Media Port Range (s)		
Physical location (City, Country)		

4.1.2 [Third Party Name] – SIP Peering Endpoints

<Third Party Logo>	SBC Site #1	SBC Site #2
Proxy Priority		
Equipment Vendor		
Type and Model		
Software Version		
Signalling IP address(s)		
Signalling Port(s)		
Media IP address(s)		
Media Port Range (s)		
Physical location (City, Country)		

4.2 SIP Media Profile

Codecs and Packetization

Incoming ([Third Party Name]to epic)		
Preference	Codec	P-time
#1		20 ms
#2		20 ms
Outgoing (epic to [Third Party Name])		
Preference	Codec	P-time
#1		20 ms
#2		20 ms

Other Services

DTMF	RFC 2833	
Fax Services	T.38 Fax Relay	

5 Routing and Release Causes

Service Description	SIP Release Cause
This answer behaviour could be applied for terminating calls when Called Party number range is not found in the Numbering Plan.	SIP 404 (Not Found)
This answer behaviour could be applied for terminating calls when ALL destinations for this ingress Trunk-Group are blocked	SIP 401 (Unauthorized)
This answer behaviour could be applied for terminating calls when destination blocked for ingress Trunk-Group	SIP 401 (Unauthorized)
This answer behaviour could be applied for terminating calls when no calendar could be applied for this routing	SIP 404 (Not Found)
This answer behaviour could be applied for terminating calls when no time-band could be applied for this routing	SIP 404 (Not Found)
This answer behaviour could be applied for terminating calls when the ingress traffic is pending on Service-Level assignments	SIP 404 (Not Found)
This answer behaviour could be applied for terminating calls when no egress trunks found for this routing	SIP 401 (Unauthorized)
This answer behaviour could be applied for terminating calls when all the egress trunks found for this routing are invalid	SIP 503 (Service Unavailable)

6 Interoperability Testing (IOT)

6.1 Test requirements

Epic and <Third Party Name> Core Networks teams will perform the applicable tests as indicated in the list below;

No	Test Id	Test Criteria
0	IOT-00-Tracert	IP Connection Check
1	IOT-01-Options	OPTION message support
2	IOT-02-CheckCall	QoS, DSCP, RBT checking
3	IOT-03-CallingClearBA	CANCEL SIP message is sent from User A to User B.
4	IOT-04-CallingClearAA	BYE SIP message is sent from User A to User B.
5	IOT-05-CalledClearBA	BUSY/CANCEL SIP message is sent from User B to User A.
6	IOT-06-CalledClearAA	BYE SIP message is sent from User B to User A.
7	IOT-07-CallSetup486	Unsuccessful Call Setup. Validate a set of known causes for release (User Busy - 486)
8	IOT-08-CallSetupNA480	Unsuccessful Call Setup. Validate a set of known causes for release (Not Available - 480)
9	IOT-09-CallSetupNAv480	Unsuccessful Call Setup. Validate a set of known causes for release (Not Available - 480)
10	IOT-10-CallSetup404	Unsuccessful Call Setup. Validate a set of known causes for release (Vacant Number/Unallocated Number - 404)
11	IOT-11-CallSetup484	Unsuccessful Call Setup. Dialling an incomplete number (Release/Address Incomplete - 484)
12	IOT-12-FAX	Calling Party sends a Fax call to Called Party using t38/.g711 codec.
13	IOT-13-DTMF	DTMF Out of Band testing
14	IOT-14-CodecNegotiation	Codec Negotiation
15	IOT-15-CLIR	Calling Line Identification Restriction (CLIR)
16	IOT-16-CFU	Call Forwarding Unconditional (CFU)
17	IOT-17-CH	Call Hold (CH)
18	IOT-18-NetworkSuspend	Suspend initiated by the network. Network drops the call automatically after 120 min (2hr) due to timeout.
19	IOT-19-Redundancy	SBC redundancy test, calls to be routed to the other available SBC upon receipt of SIP 503.

7 Billing and Reporting Tests

7.1 Billing Tests

The billing tests will be conducted to verify call records and validate the billing and invoicing procedures and systems of both Epic and the third-party network. This will be achieved by generating a predefined set of test calls. The associated call records produced by Epic and <Third Party Name> for each call type will be verified to ensure they are accurate in all details. The invoices produced by both parties will then be compared for the final verification of the billing systems.

Epic will collect Call Detail Records (CDRs) for the duration of the testing period.

7.1.1 Test Data

The call records produced shall contain the following fields;

- i. Test Case
- ii. A-Party Number
- iii. B-Party Number
- iv. C-Party Number
- v. Call Start Time
- vi. Call Answer Time
- vii. Call End Time
- viii. Call Duration
- ix. Expected Result
- x. Actual Result

7.1.2 Test Cases

< Billing tests to be included here >

7.1.3 Test Report

<Test Report to be included here>