

Solution Proposal for IR XXXX AT&T Inbound and Outbound LTE/VoLTE Roaming

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Document Revision History

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| --- | --- | --- |
| Revision | Date | Description |
| 0.1 | 6/11/2019 | Initial Version |
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# Business Drivers

The AT&T InBound(I/B) and OutBound(O/B) LTE/VoLTE roaming project is to enable LTE/VoLTE roaming for AT&T subscribers on our network (Inbound Roaming) and also USCC subscribers to roam on AT&T network (Outbound Roaming). The project can be delivered in different phases to meet the business needs based on AT&T roaming agreement and USCC planning efforts.

# High Level Scope

High level scope that will be needed include following capabilities.

## Functional Capabilities:

### FC1: TADIG Billing/Rating test strategy for I/B and O/B

* System impacts if any and due diligence with regression testing from E2E roaming settlement aspects for both inbound and outbound scenarios

Note: IREG testing validations and certification dependency on engineering timelines and scope of work

* 50+ devices testing and scope of work should be considered in the overall effort and success criteria.

Note: AT&T/Engineering/Device engineering teams are responsible on the device availability with any support from IS ETQA team

### FC2: Design/configurations changes (if any) to support AT&T roaming

* Inter-carrier services (ICS) team will add the initial rates for the different QCI values in APRM for inbound roaming.
* TOPS APRM should check for any new changes that impact APRM records formats and/or ARCM TAP format i.e. TAP TD57 v32.4 interface and follow any updated GSMA guidelines.
* Must meet the North American Edits validations with the TD.57 standards considered.
* IS PDC should support any new/additional APN’s, QCI based charging, support the North American Edits validations/standards.
* EPC team to support additional devices configurations with synthetic or real data for test strategy needs as applicable. This can decided during the delivery planning phase.
* Engineering/Business teams to validate and configure all the PLMN/TAC restriction entries to ensure there are no missing records in IS PDC mediation platform

## Operational Capabilities:

This section describes scope that supports the functional scope. These items are needed but do not drive the overall benefit. Scope items here include items needed to support technical impacts to other organizations.

Note: IS operations may have impacts as we are dealing with additional roaming partner and watch for any fallout prior to implementation and beyond.

### SC1: Billing display of AT&T roaming charges

* Display of charges and overages associated with AT&T roaming charges on customer’s invoices.

### SC2: Usage and settlement validations

* TOPS APRM will account and rate this usage for settlement and Revenue reporting. APRM will calculate the charges for each CDR, and will send this usage to ARCM, which will format TAP records for distribution to TNS DCH. Validations are critical with all impacts (if any) must be addressed prior to implementation.
* TAP/RAP handling will leverage the process(s) created with previous roaming projects with usage acquisition and settlement flows validated for
* BPT to look at retail rating/wholesale settlement flows as applicable for any impacts.

# Capability Prioritization and Sequencing

This section lists the capabilities in the order of priority and/or sequencing where applicable. Priority is informed by multiple factors (a) Value Realization (b) Maturity of Solution (c) Resource Constraints (d) Budget …

Sequencing is informed and applicable when there are dependencies that when adhered to enable realization of business value.

|  |  |  |
| --- | --- | --- |
| **Capability** | **Recommended MVS/MVP** | **Value Rationale** |
| FC1: TADIG Billing/Rating test strategy | MVS 1 | Time-To-Market for both I/B and O/B roaming scenarios included in a phased approach. Dependencies include IREG testing, connectivity and Usage generation as required to support the test strategy |
| FC2: Design/configurations changes (if any) to support AT&T roaming | MVS 1 |
| SC1: Billing display of AT&T roaming charges | MVS 1 | Enables MVP, if business decides to launch AT&T I/B and O/B LTE/VoLTE roaming scenario |
| SC2: Usage and settlement validations | MVS 1 |
|  |  |  |

# Solution/Approaches

## Proposed Solution/Approach 1: Leverage existing TAP formats and enhance based on the gaps/new scope identified

### Solution Overview

The key objectives are to grow USCC inbound roaming revenue stream from foreign customers on the USCC VoLTE network, as well as to provide a positive customer experience for our own subscribers who can roam on identified AT&T markets.

* Protect and Grow LTE/VoLTE inbound roaming revenue streams by enabling LTE/VoLTE in USCC markets only for inbound roamers.
* Nationwide LTE/VoLTE footprint to offer our subscribers outside USCC coverage area.

With above in background this solution will ensure appropriate measures and guidelines to meet this ICS business initiative. At a high level Option1 solution proposal covers some of the impacted areas, systems and components with responsible teams identified to the best.

Existing business functionality should not be impacted with appropriate validation steps in place. Appropriate IS ETQA validations and test execution steps to be in place in accordance with the ICS/IS planning efforts.

As part of this option1 key IS solution design steps includes

1. IS design changes are minimal and cover the business scope overall
2. Any new roaming partner technical scope should be made available prior to the design/implement phase.
3. Infra team to review the capacity and sizing needs with the relevant stakeholders

### Capabilities Included/Excluded

Included in this solution are capabilities suggested for prioritization as identified in section3.0

### Pros/Cons for the Solution

This is the option1 proposed with various steps. Moreover IS scope includes low+ project management oversight, release dependencies, modules configurations, Amdocs SME support and ETQA validations/support if no additional issues identified.

Note: If issues are identified late in the design phases or after implementation there are lots of consequences in terms of scope, cost and schedule impacts.

# Recommendation

Following are the Architecture recommendation with considerations/guidelines.

* IS delivery planning should consider Engg IREG testing dependencies.
* IS ETQA test strategy, planning and support should look for dependencies and functional/regression scenarios to cover all aspects
* AT&T/USCC IREG and TADIG testing procedures/guidelines should be followed for proper completion of project. Also meet the roaming partners legal certifications and sign off
* Delivery planning activities should further focus for defining tracks based on capacity for the upcoming PIs.

# Impacted Teams and Functions

Teams impacted by capabilities:

|  |  |
| --- | --- |
| **Capability** | **Teams Impacted/Needed** |
| FC1: TADIG Billing/Rating test strategy | IS ETQA, IS PDC, IS Billing, |
| FC2: Design/configurations changes (if any) to support AT&T roaming | Amdocs, EPC/BPT, IS PDC |
| SC1: Billing display of AT&T roaming charges | IS ETQA |
| SC2: Usage and settlement validations | IS ETQA, ICS, UAT, TNS and AT&T |

Additional teams that should be aware and consulted:

1. Change management
2. Billing Operations
3. Engineering Architecture and Engineering Network Operations

# Impacted Business Process Areas

|  |  |
| --- | --- |
| **Capability** | **ASOM Level A Mapping** |
| FC1: TADIG Billing/Rating test strategy | Customer Consumes Service |
| FC2: Design/configurations changes (if any) to support AT&T roaming | Customer Consumes Service |
| SC1: Billing display of AT&T roaming charges | Bill Day Arrives, Manage Enterprise Operations |
| SC2: Usage and settlement validations | Bill Day Arrives, DCH Settlements |

# Estimated effort duration

MVS 1 which is the proposed scope under this proposal should take 2-6 months in effort duration.

# Governance Recommendation

Minimal IS PM engagement is required for the IS ETQA/Mediation teams/Operations effort, downstream teams and engineering activities to implement AT&T roaming Inbound/outbound initiative. IS ETQA team is the primary stakeholder to carry out the test strategy and planning. IS governance could be a Low+ effort weight to oversee all the impacted teams and underlying systems as per existing LTE/VoLTE architecture. EPM engagement is required.

This type of work has been executed in the past with same/similar roaming partner and there is no need to fully staff a Solution Architect and consulted on a need basis.

# Guidance for Capex/Opex Determination

Low-Medium Opex changes to IS as part of this initiative. Capex include the following components with a) Engg configuration changes if any b) IS estimates to analyze/test/validate/implement and support through the project life cycle.