

vMTAS Network Impact Report from 1.6 to 1.8 MTAS

NETWORK IMPACT REPORT

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1 Introduction

This Network Impact Report (NIR) describes how the Virtual Multimedia Telephony Application Server (vMTAS) 1.8 with new and enhanced features affects the vMTAS 1.6. The NIR also describes the impact on the overall network, including all affected products and functions.

This document covers the following new and enhanced features:

New Features

- Rebalancing by Moving Users between MTAS Instances
- Network Level Licensing of Feature Licenses in MTAS – CLOUD
- Generation of 180 Ringing in MMTel AS at the Reception of 183 Session Progress
- Generic Ro Initiated Retarget in MMTel AS
- Multi-persona: Alternative Line Identity for Voice Calls
- Enhancements to NPLI Support in SCC AS
- Route Header not to be sent to External MRFC
- IMS Support for UC Mobility
- Ro Suppression based on B number
- DSCP Markings
- Workflows for VNF Life Cycle

Enhanced Features

- International Outgoing Call Barring for Wi-Fi Access
- Display MDUCAC calls as available for Call Pull
- IMEI in MMTel AS Charging
- Destination-based CAP Triggering
- Addition of Two Subscriber Transparent Data and CS-Retry Prefix
- Backward ICBS Parameter for FCD Primary User
- Configurable FCH Parameters for Japanese Charging Service



- Include SDP Offer in re-INVITE for Moving to an Ad-hoc Conference
- SIP URI without Phone-context for SCC AS
- SDP Offer for Initial INVITE to New Target for Account Activation
- Match Existing Session in Move Active Session to Existing Conference
- Enhancements of Offline Charging Interim ACR Handling
- Extension Number Support (Line Sharing Phase 1.0+)

For more information on the changed features, see Section 4 on page 21.



2 General Impact

This section describes the general impact owing to the introduction of the vMTAS 1.8.

2.1 Backward Compatibility

The vMTAS 1.8 is backward compatible and unless stated otherwise, legacy behavior is preserved.

2.1.1 Interoperable Network Elements

The interoperable Network Elements for vMTAS 1.8 are described in Table 1.

Table 1 Supported Versions of Network Elements

Network Element	Earliest Supported Versions
MRS	14A
CSCF	14A
HSS	14A
OSS-RC	O16A Upgrade for OSS-RC is only needed when new parameters and counters are introduced in MTAS and are to be used.
EMA	7.0 CP2
SBG	15B

2.2 Capacity and Performance

2.2.1 Subscriber Capacity

The subscriber capacity is not affected by the introduction of the vMTAS 1.8.

The number of half call establishments and releases per second determines the need of processing resources. Processing capacity is the limiting factor for the MMTel, SCC, NW, and SIP Trunking AS.



2.2.2 Network Performance and Traffic Capacity

The in-service network performance and traffic capacity is not affected by the introduction of the vMTAS 1.8. The network performance and traffic capacity is estimated to be the same as in vMTAS 1.6.

2.2.3 License Handling

It is mandatory to use Network License Server (NeLS) product with vMTAS 1.8 .

For more information, refer to *MTAS Licenses*.



3 Interfaces

This section describes interface changes between the existing and new revisions of the product.

3.1 Inter-node Interfaces

The changes to the inter-node interfaces are described in Table 2.

The description of impact is as follows:

- **No Impact** - New version can be installed without affecting other nodes.
- **Minor Impact** - There are changes, but with extra configuration the previous behavior can be kept.
- **Major Impact** - The change has made an interface backward incompatible.
- **New Interface** - The interface did not exist in the previous revision.
- **Obsolete** - The interface no longer exists.

Table 2 Inter-node Interfaces

Interface	Protocol	Impact	Description of Change Compared to vMTAS 1.6
Charging Rf	Diameter	No Impact	Offline charging output extended with Interim-Reason AVP in ACR[Interim].
Charging Rf	Diameter	No Impact	Interim-Interval timer spread (+/-2%) is configurable using new configuration attribute. The randomization is disabled by default for new installations and enabled for existing installations during upgrade procedure.
CAT	SIP	No Impact	From now on, operator can configure MTAS so it won't include Route header in the messages sent directly to CAT-s without any intermediate SIP proxy node. Refer to <i>MtasSpecializedMediaResourceRoute</i> in the <i>MTAS Parameter Description</i> for details
DNS	TCP/UDP	Minor Impact	When CM attribute <i>DNS.DnsDscpValue</i> is configured, DSCP value will be shown in all DNS sockets.
Ro	Diameter	Minor Impact	New Retarget-Instruction APV introduced.
ISC	SIP	No Impact	Warning header is added for 503 response, in case of license failure for Mmtel and SCC license.
ISC	SIP	No Impact	New attribute <i>mtasSipRemoveSupportedHeaderInErrorResponse</i> is added to enable MTAS to remove the supported header in SIP response when its value is set to "1". The SIP error responses include these SIP responses forwarded or triggered by MTAS. The error codes of these SIP error response must be greater or (equal to) 300. When the value of parameter is set to "0", the Supported headers are not removed by MTAS if there in these SIP error response as legacy. After upgrade, the default value("0") of the CM attribute will be used, that is,. the legacy behavior will be kept.



Table 2 Inter-node Interfaces

Interface	Protocol	Impact	Description of Change Compared to vMTAS 1.6
ISC	SIP	No Impact	New CM attribute <code>mtasSipChangeRefresherRoleInReinviteAndUpdate</code> is added. This attribute defines the MTAS behaviour of changing the refresher role for reINVITE and normal UPDATE in an exception case. If this attribute is disabled, then when MTAS sends out the reINVITE or normal UPDATE, it will not change the role of refresher parameter which means that it will be same as the previous negotiated result. Enabling the attribute, an exception will occur if the previous negotiated result is the remote side as refresher. In this case, MTAS will change the refresher role to empty, i.e. no refresher parameter in the reINVITE and normal UPDATE. In case that before upgrade, the <code>mtasSystemConstantSC ID 84</code> is set to 1, then this CM attribute will be set to FALSE and the new behavior will be applied. Otherwise, the default value(TRUE) of this CM attribute will be used after the upgrade, that is, legacy behavior will be performed.
ISC	SIP	No Impact	New CM attribute <code>mtasSubsDataRegEventNotifier</code> is added. This attribute defines whether MTAS sends the one-time SUBSCRIBE to SCSCF or ICSCF. The possible values are as follows: - SCSCF: MTAS sends the SUBSCRIBE to SCSCF (default). - ICSCF: MTAS sends the SUBSCRIBE to ICSCF at de-registration and to SCSCF at registration. In parallel, <code>mtasSystemConstantSC ID 83</code> is deprecated. If MTAS is upgraded from 1.6 or 1.7 and <code>mtasSystemConstantSC</code> is set (presents) then the value of the new CM parameter must be 'ICSCF' on the new MTAS version (4.8/1.8 and above).
ISC	SIP	No Impact	CM attribute <code>mtasSubsDataRegEventNotifier</code> has been modified: Before MTAS 1.8, MTAS sends the SUBSCRIBE to ICSCF at de-registration and to SCSCF at registration when <code>mtasSubsDataRegEventNotifier: 1=ICSCF</code> . From MTAS 1.8, MTAS sends the SUBSCRIBE to ICSCF in all cases (at registration, at implicit registration and at de-registration as well) when <code>mtasSubsDataRegEventNotifier: 1=ICSCF</code> .
CAI3G	CAI3G	No impact	Add support of new service "Multi-Persona"
Mr	NetAnn(SIP)	No Impact	Operators can configure MTAS/vMTAS so it won't include Route header in the messages sent directly to MRFC without any intermediate SIP proxy node. Refer to <code>mtasMrControllerRoute</code> in the <i>MTAS Parameter Description</i> for details
Mr	SIP	No Impact	Legacy fault has been corrected. While caller sends a CANCEL towards terminating MTAS during play of OCS initiated final announcement, the announcement will be terminated.
ISC	SCC AS NPLI	No impact	When the CM attribute <code>mtasScCNpliOriginatingCSLocationInformation</code> is set to "CGI_VLR_MSC" the initial INVITE request sent to MMTEL AS shall include the PANI header where CGI (as of today) and VLR and MSC information is included if they were available in location information from HSS. Also the Access-type in the PANI header will include the Access-type if defined in CM attribute <code>mtasScCNpliDefaultCSAccessType</code> . If not defined, "3GPP-GERAN" is used as access-type. When the CM attribute <code>mtasScCNpliTerminatingCSLocationInformation</code> is set to "CGI_VLR_MSC" the initial INVITE request sent to MMTEL AS shall include the PANI header where CGI (as of today) and VLR and MSC information is included if they were available in location information from HSS. Also the Access-type in the PANI header will include the Access-type as defined in CM attribute <code>mtasScCNpliDefaultCSAccessType</code> (default value is, "3GPP-GERAN")
ISC	SIP	No impact	Legacy fault has been corrected. From now on UCAC's waiting-limit can be applied on originating side by setting <code>mtasUCacApplyWaitingLimitOnSide</code> to '0'. By default waiting-limit will be applied on terminating side only (default value is '1').
ICS, Ro	SIP, DIAMETER	Minor Impact	SCN Service will reject the INVITE when END_USER_SERVICE_DENIED(4010) received for the CCA-I as result multi-device charging behavior will be suppressed. SCN Service will suppress CDIV if multi-device charging is enabled and a negative response is received for the CCA-I.
Sh	Diameter	No impact	Add support of new service "Multi-Persona"
Ut	XCAP	Major impact	When the Service Profile license is not valid or present, the response is 403 Forbidden instead of 409 Conflict. See HV64567.
Rf	SCC AS NPLI	No impact	When the CM attributes <code>mtasScCNpliTerminatingCSLocationInformation</code> is set to "CGI_VLR_MSC" the ANI AVP sent in ACR start for terminating charging session shall include VLR and MSC information if available. In addition an access-type as defined in <code>mtasScCNpliDefaultCSAccessType</code> , shall be included in the ANI AVP.



Table 2 Inter-node Interfaces

Interface	Protocol	Impact	Description of Change Compared to vMTAS 1.6
Rf	Diameter	Minor Impact	New Ericsson proprietary AVP with info that the corresponding Ro signaling is suppressed. Ro-Information ::= < AVP Header: 1478 193 > [Ro-Status] The AVP has m-bit false and is included only when Ro suppression is triggered and enabled.
Rf/Ro	Diameter	No impact	Online and offline charging output extended with Instance-Id and User-Equipment-Info AVPs in ACR-Start, CCR-Initial, ACR-Event, and CCR-Event for normal sessions or diverted after “No response” or “Busy” subscriber. The new AVPs are default omitted.
Rf/Ro	Diameter	No impact	If mtasNccReportSsiToCharging is enabled, MTAS report to charging the use of CAMEL service in Supplementary-Service-Identity AVP and new values are added in the existing S-S-I AVP.
ISC	SIP	No impact	A feature tag in the Accept-Contact header is added by the terminating MMTel AS if the <feature-tags> data is provisioned by the operator before the INVITE message is sent to the terminating SCC AS. The SCC AS removes the feature tag from the INVITE message when it contains a province.
ISC	SIP	No impact	A feature tag in the Accept-Contact header is added by the terminating MMTel AS if the <feature-tags> data is provisioned by the operator before the INVITE message is sent to the terminating SCC AS. The SCC AS removes the feature tag from the INVITE message when it contains the “+ps” value.
ISC	SIP	No impact	Warning header is added for 503 response, in case of license failure for Mmtel and SCC license.
Rf/Ro	Diameter	No impact	The provisioned customized charging information in <common-data><charging-avp-list><service-specific-info> is reported to offline/online charging nodes in grouped Service-Specific-Info AVP
CAI3G	CAI3G	Minor impact	The MMTel charging profile check-in provisioning is removed. It is now possible to provision a MMTel charging profile to a user which is not configured MTAS. See HV62951.

3.2 Operation and Maintenance

This section describes changes to attributes, alarms, events and notifications, triggers, and counters.

3.2.1 Provisioning

There are no changed or deleted attributes.

3.2.1.1 New Attributes

The new attributes are shown in Page 7.

Table 3 New Attributes

Interface	Protocol	Impact	Description of Change Compared to vMTAS 1.6
Sh	Diameter	-	New service “Multi-Persona” introduces a new element: <operator-multi-persona>



Interface	Protocol	Impact	Description of Change Compared to vMTAS 1.6
Sh	Diameter	-	MTAS supports the parsing of the <code>IMSPublicIdentity</code> from the <code>ImplicitIdentities</code> . E.g.: <pre> <Sh-Data> <Extension> <ImplicitIdentities> <IMSPublicIdentity>sip:+17014801382@test.com </IMSPublicIdentity> <IMSPublicIdentity>tel:+17014801382</IMSPublicIdentity> </ImplicitIdentities> </Extension> </Sh-Data> </pre>
CAI3G	CAI3G	No impact	The operator has the possibility to configure through CAI3G request customized charging information. New CAI3G element <code><common-data><charging-avp-list><service-specific-info></code> is used for provisioning.
CAI3G	CAI3G	-	New service "Multi-Persona" introduces the following new elements: <pre> <multi-persona> <mup-operator-configuration> <activated> </pre>
CAI3G	CAI3G	-	New service UC Routing is added: <pre> <mc:unified-communication-routing> <mc:ucr-operator-configuration> <mc:activated>true</mc:activated> <mc:originating-number>467611111</mc:originating-number> <mc:terminating-number>467622222</mc:terminating-number> </mc:ucr-operator-configuration> </mc:unified-communication-routing> </pre> <p>New XML element under <code><common-data></code> is added: <pre> <mc:subscriber-type>BUSINESS</mc:subscriber-type> </pre> <p>New XML element under <code><user-common-data></code> is added: <pre> <mc:ucr-served-identity>tel:+4610123456</mc:ucr-served-identity> </pre> <p>Note: Corresponding Sh elements are added on the Sh interface.</p> </p></p>

3.2.2 Configuration

This section describes changed, deprecated, obsolete, and new attributes.

For more information on attributes and parameters, refer to *vMTAS Master Parameter Value List*.

3.2.2.1 Changed Attributes

The changed attributes are shown in Table 4.

Table 4 Changed Attributes

Attribute Name	Description of Change
mtasChargingProfileOmitAcr	The Interim-Reason AVP code is added to the list of allowable values
mtasFcdCallToRelatedUserTag	Attribute cardinality is changed from 1-1 to 0-1



Attribute Name	Description of Change
mtasEsCbTag	Attribute cardinality is changed from 1-1 to 0-1
vtasFcdCallToRelatedUserTag	Attribute cardinality is changed from 1-1 to 0-1
vtasEsCbTag	Attribute cardinality is changed from 1-1 to 0-1
mtasMrControllerRoute	There is a third possible value, "2 - omitRouteHeader". If set, MMTel AS will not include Route header in the messages sent directly to the CAT server.
mtasNccImsiBehavior	The old value 0-IMSI_REQUIRED, 1-IMSI_NOT_REQUIRED is deprecated, the new value 2-IMSI_NOT_REQUIRED_PROVISION 3-IMSI_REQUIRED_PROVISION_IN_NCC_OR_UCD is used. If upgrade from old version, the value of the CM is automatically migrated from 0 to 2, and from 1 to 3.
mtasNumberTranslationRule	A new optional element in the syntax for Number Translation rule which can be used for B number classification. Colon is used to separate from previous element. For toll-free classification the element shall be ":BNumType=Tollfree". For National Short Code classification the element shall be ":BNumType=NSC".
mtasSdsUriSchema	New ENUM value 2 sipEmbeddedTelWithoutPhoneContext
mtasSscAbDialEnforceSscSubscribe	Attribute description updated. Changed "AbDial Service" to "Abbreviated Dialing Service".
vtasSscAbDialEnforceSscSubscribe	Attribute description updated. Changed "AbDial Service" to "Abbreviated Dialing Service".
mtasChargingProfileInterimIntervalSpread	Default valued changed from 0 (do not apply randomization) to 1 (apply randomization) to keep backwards compatibility after upgrading from previous releases
mtasSubsDataRegEventNotifier	Description has been changed

3.2.2.2

Deleted Attributes

The deleted attributes are shown in Table 5.

Table 5 Deleted Attributes

Attribute Name
Configuration of the Arwa server connection properties MOC <i>ArwaConfiguration</i> is removed under <code>ManagedElement=1, SystemFunctions=1, Lm=1</code> .

3.2.2.3

Deprecated Attributes

The deprecated attributes are shown in Table 6.

Table 6 Deprecated Attributes

Attribute Name	Description
vtasConfCoLocated	Status of the parameter changed to deprecated

**3.2.2.4****New Attributes**

The new attributes are shown in Table 7.

Table 7 New Attributes

Attribute Name	Description
DNS.DnsDscpValue	Added and supported
mtasAsIwSessionProgressMappingOnPreconditionEnabled	Now supported
mtasCbLocationInTransitMode	Now supported
mtasCbVersion	Now supported
mtasChargingProfileInterimIntervalSpread	Added, but not supported
mtasChargingProfileLongDurationInterimTimer	Added and supported
mtasChargingProfileReportFipIdInOrigChargingMessages	Now supported
mtasChargingProfileReportFipIdInTermChargingMessages	Now supported
mtasChargingSubscriberCreditNotificationOfferEstablishedMediaToTarget	Now supported
mtasConfImpuBasedMoveInEnabled	Added and supported
mtasConfMoveCodecOfferingMode	Added and supported
mtasCwSend180RingingAfterPreconditionNegotiation	Added and supported
mtasChargingProfileRoSuppressionOnBNumber	Added and supported
mtasEsCbTag	Added, but not supported
mtasFcdCallToRelatedUserTag	Now supported
mtasFcdSuppressEarlyMediaToRelatedUser	Added, but not supported
mtasFcdSuppressOrigOnlineChargingToRelatedUser	Now supported
mtasFcdSuppressOnlineChargingOnRelatedUser	Added but not Supported
mtasFcdEarlyMediaSuppressionHeaderToRelatedUser	Now supported
mtasJcBackwardIcbsBehavior	Added and supported
mtasJcFchChargeRateNoflex	Added and supported
mtasJcFchChargeRateOrdinary1	Added and supported
mtasJcFchChargeRateOrdinary2	Added and supported
mtasJcFchChargeRatePayphone1	Added and supported
mtasJcFchChargeRatePayphone2	Added and supported
mtasMmtEstablishedSessionGauge	Added, but not supported
mtasMmtMobileUserDetermination	Now supported
mtasMmtServedSubscriberType	Added and supported
mtasNccBNumberBasedTrigger	Added and supported
mtasNccBNumberList	Added and supported
mtasNccReportSsiToCharging	Added and supported



Attribute Name	Description
mtasReBalancing	Added and supported
mtasReBalancingAdministrativeState	Added and supported
mtasReBalancingState	Added and supported
mtasReBalancingTargetNodeSipUri	Added and supported
mtasReBalancingThreshold	Added and supported
mtasSipChangeRefresherRoleInReinviteAndUpdate	Now supported
mtasSipRemoveSupportedHeaderInErrorResponse	Now supported
mtasSrvccAlertingBuffer18x	Added but Not Supported
mtasSscAbDialEnforceSscSubscribe	Added and supported
mtasSscCellAnnEnforceSscSubscribe	Added and supported
mtasSscCrEnforceSscSubscribe	Added and supported
mtasSscHotlineEnforceSscSubscribe	Added and supported
mtasSscPriorityCallEnforceSscSubscribe	Added and supported
mtasSscVmEnforceSscSubscribe	Added and supported
mtasSccNpliDefaultCSAccessType	Added and supported
mtasSccNpliOriginatingCSLocationInformation	Added and supported
mtasSccNpliTerminatingCSLocationInformation	Added and supported
MtasSpecializedMediaResourceRoute	Added and supported
mtasSubsDataRegEventNotifier	Added and supported
MtasTa	Added but Not Supported
MtasTa mtasTaAdministrativeState MtasTestAnnNumbers mtasTestAnnNumbersNum mtasTestAnnNumbersGa	For future use
mtasTaAdministrativeState	Added but Not Supported
mtasTadsCsBreakoutControl	Added and supported
mtasTadsDenormalizeAllCsRns	Added and supported
mtasTadsHssTadsInfoQuery	Added but not supported yet
mtasTadsOngoingSessionGauge	Added but not supported yet
mtasTadsRegion	Added and supported
mtasTadsRegionCsRnPrefix	Added and supported
MtasTestAnnNumbers	Added but Not Supported
mtasTestAnnNumbersGa	Added but Not Supported
mtasTestAnnNumbersNum	Added but Not Supported
MtasUCRouting	Added and supported
mtasUCacApplyWaitingLimitOnSide	Added and supported
mtasUCRoutingAdministrativeState	Added and supported



Attribute Name	Description
mtasUCRoutingNormalizedNumberHeader	Added and supported
mtasUCRoutingOriginalDestinationNumberHeader	Added and supported
mtasUCRoutingPSUHeader	Added and supported
mtasUCRoutingTermReceivedNumberHeader	Added and supported
mtasUCRoutingTermTrunkResponse	Added and supported
NeLSConfiguration	<p>For Network License Server (NeLS) Server configuration parameters.</p> <p>New MOC NeLSConfiguration and following attribute under ManagedElement=1, System Functions=1, Lm=1</p> <p>Host: IPv6, IPv4 or DNS name, the IP address or domain name of NeLS</p> <p>Port: The port number that is used to connect to NeLS</p> <p>RetryInterval: The number of seconds between reconnection attempts. First reconnection attempt occurs randomly between tree to five minutes. Subsequent attempts occur with the delay specified by retryInterval.</p> <p>connectionStatus: (read only) represents status of the connection toward NeLS</p>
vtasCbLocationInTransitMode	Now supported
vtasCbVersion	Added but not Supported
vtasConfImpuBasedMoveInEnabled	Added and supported
vtasConfMoveCodecOfferingMode	Added and supported
vtasEsCbTag	Added, but not supported
vtasFcdCallToRelatedUserTag	Now supported
vtasFcdSuppressEarlyMediaToRelatedUser	Added and supported
vtasFcdSuppressOrigOnlineChargingToRelatedUser	Now supported
vtasFcdSuppressOnlineChargingOnRelatedUser	Added but not Supported
vtasFcdEarlyMediaSuppressionHeaderToRelatedUser	Now supported
vtasMmtMobileUserDetermination	Now supported
vtasMmtServedSubscriberType	Added, but not supported
vtasSscAbDialEnforceSscSubscribe	Added and supported
vtasSscCellAnnEnforceSscSubscribe	Added and supported
vtasSscCrEnforceSscSubscribe	Added and supported
vtasSscHotlineEnforceSscSubscribe	Added and supported
vtasSscHotlineEnforceSscSubscribe	Added and supported
vtasSscVmEnforceSscSubscribe	Added and supported
vtasMmtMobileBehaviour	Added, but not supported
vtasMmtMultiMobileSupport	Added, but not supported
mtasCDivPostOpRulesBehavior	Added, but not supported



Attribute Name	Description
mtasSccMobileBehaviour	Added, but not supported
vtasCwSend180RingingAfterPreconditionNegotiation	Added and supported
vtasUCacApplyWaitingLimitOnSide	Added and supported
mtasUCacApplyWaitingLimitOnSide	Added and supported
mtasMmtMobileBehaviour	Added, but not supported
mtasMmtMultiMobileSupport	Added, but not supported
vtasSscPriorityCallEnforceSscSubscribe	Added and supported

3.2.3 Fault Management

The new attributes are shown in Table 8.

Table 8 New Alarms

Alarm	Description
MtasMmt, MMTel Voice Base License Absent	If MMTel Voice Base license absent, then this alarm will be raised.
MtasLicenses, MMTel Service Exposure License Absent	If MMTel Service Exposure license absent, then this alarm will be raised.
MtasLicenses, MMTel Location Services License Absent	If MMTel Location Services Support license absent, then this alarm will be raised.
MtasLicenses, MMTel Legacy IN reuse License Absent	If MMTel Legacy IN-reuse license absent, then this alarm will be raised.
MtasLicenses, MMTel Multimedia License Absent	If MMTel Multimedia license absent, then this alarm will be raised.
MtasLicenses, MMTel Multi Device License Absent	If MMTel Multi Device license absent, then this alarm will be raised.
MtasLicenses, MMTel Communication State Exposure License Absent	If MMTel Communication State Exposure license absent, then this alarm will be raised.
MtasLicenses, Scc Base License Absent	If SCC AS base pack license absent, then this alarm will be raised.
MtasSrvcc, Single Radio Voice Call Continuity License Absent	If SRVCC license absent, then this alarm will be raised.
MtasScc, WiFi Calling License Absent	If WiFi Calling license absent, then this alarm will be raised.
MtasMmt, BL Voice Base License Absent	Raised when MMTel is configured for business usage and BL Voice Base license is absent when the mtasMmtAdministrativeState is unlocked.
MtasLicenses, BL Legacy IN reuse License Absent	Raised when MMTel is configured for business usage and BL Legacy IN Reuse license is absent when the mtasSsfCaps2AdministrativeState is unlocked.
MtasLicenses, BL Location Services Support License Absent	Raised when MMTel is configured for business usage and BL Location Services Support license is absent when the mtasDnmAdministrativeState is unlocked.
MtasLicenses, BL Multimedia License Absent	Raised when MMTel is configured for business usage and BL Multimedia license is absent when the mtasVideoFBAdministrativeState is unlocked.



MtasLicenses, BL Service Exposure License Absent	Raised when MMTel is configured for business usage and BL Service Exposure license is absent when the <code>mtasFsfAdministrativeState</code> and/or <code>mtasMmtPxAdministrativeState</code> are unlocked.
MtasLicenses, BL UC Routing License Absent	Raised when MMTel is configured for business usage and BL UC Routing license is absent when the <code>mtasUCRoutingAdministrativeState</code> is unlocked.
MtasLicenses, Communication Interworking Function NW AS Base License Absent	If Communication Interworking Function NW AS Base License absent or License Server Not reachable or License expired or License Server in LOCKED mode and <code>mtasNwAdministrativeState</code> is unlock, then this alarm will be raised.
MtasLicenses, SIP Trunking AS Base License Absent	If SIP Trunking AS Base License absent or License Server Not reachable or License expired or License Server in LOCKED mode and <code>mtasStAdministrativeState</code> is unlock, then this alarm will be raised.

3.2.4 Events and Notifications

There are no changed, deleted, or new events and notifications.

3.2.5 IFC Triggers

A new terminating trigger is introduced for business users. This is needed to route the VoLTE mobile terminated calls to the MMTel-AS for business line in the UC Mobility solution.

IF (Method=INVITE AND SessionCase="Terminating" AND NOT (header="Ericsson-UCMobility-UC-Ext"))

THEN

Add the following route header

Route: sip:mmtel.domain.net;sc=term-trunk

3.2.6 Counters

This section lists changed and new counters.

For more information on counter description, refer to *MTAS Performance Measurements*.

There are no deleted, changed,, deprecated, or obsolete counters.

3.2.6.1 New Counters

The new counters are shown in Table 9.

Table 9 New Counters

Counter Name	Description
MtasCsiBNumberTriggerInitDPOK	Added and supported



Counter Name	Description
MtasMmtEstablishedSessionAvg	Added, but not supported
MtasMmtEstablishedSessionMax	Added, but not supported
MtasMmtEstablishedSessionMin	Added, but not supported
MtasSubsDataServedUsers	Added and supported
MtasSubsDataRegisteredUsers	Added and supported
MtasReBalancingMovedUsers	Added and supported
MtasReBalancingRedirections	Added and supported
MtasTadsDurationAlertedSessCs	Added, but not supported
MtasTadsDurationAlertedSessPs	Added, but not supported
MtasTadsDurationAnsweredSessCs	Added, but not supported
MtasTadsDurationAnsweredSessPs	Added, but not supported
MtasTadsDurationInitialSessCs	Added, but not supported
MtasTadsDurationInitialSessPs	Added, but not supported
MtasTadsOngoingAlertedSessCs	Added, but not supported
MtasTadsOngoingAlertedSessPs	Added, but not supported
MtasTadsOngoingAnsweredSessCs	Added, but not supported
MtasTadsOngoingAnsweredSessPs	Added, but not supported
MtasTadsOngoingInitialSessCs	Added, but not supported
MtasTadsOngoingInitialSessPs	Added, but not supported
MtasUCRoutingOrigOk	Added and supported
MtasUCRoutingTermOk	Added and supported
MtasUCRoutingTermNOk	Added and supported
MtasConfBusinessParticipants	Added and supported
MtasChargingSuppressedRo	Added and supported

3.3 Other Interface Impacts

3.3.1 User Services

All MTAS nodes in the network must be upgraded before taking new services in operation.

The changes to existing user services are described in Table 10.

The description of impact is as follows:

- **No Impact** - New version can be installed without affecting other nodes.
- **Minor Impact** - There are changes, but with extra configuration the previous behavior can be kept.



- **Major Impact** - The change has made an interface backward incompatible.
- **New Interface** - The interface did not exist in the previous revision.
- **Obsolete** - The interface no longer exists.

Table 10 Changed Services

Interface	Service Name	Impact	Description of Change Compared to vMTAS 1.6
ISC	DNM	No Impact	Based on new configuration <code>mtasDnmFixedDeviceSupportApplicableForLocalness</code> , Localness check is applied also when the call is from a fixed device. Source of change: HV54656
ISC	Call Return	Minor Impact	When the <code>mtasCrAdministrativeState</code> is in Locked state or the license is not present, the CR service will not start, instead of rejecting the call with 403 error response. Source of change: HV55537
ISC	Communication Barring	No Impact	Based on configuration <code>non-3gpp Access for Mobile subscriber</code> will not be considered fixed access for OCB international/international-exHC/Roaming checks
ISC	Dialog Event Notification (STOD Call Pull)	Major Impact	Inform subscribers that are subscribing to dialog event, if a session cannot be pulled due to device call limits restrictions (MDUCAC).
CAMEL	NorthboundCallControl	No Impact	If <code>mtasNccBNumberBasedTrigger</code> is enabled, the IDP sending can be triggered by B-number matching function.
ISC	Japanese Charging Service	No Impact	Introduction of optional configuration based behaviour to send backward ICBS parameter of FCD primary user (B) towards the originating network New Configurable FCH parameters introduced
ISC	Adhoc Conference	No Impact	Introduced optional configuration (<code>mtasConfMoveCodecOfferingMode</code>) based behavior to carry SDP in reINVITE for move operation in Adhoc conference.
ISC	Re-balancing	No Impact	The Re-balancing feature supports for the redistribution of the registering users. If the feature is active, then the initial and the re-REGISTER requests are redirected to a configurable destination address (target SIP URI) by rejecting the request with a 305 (Use Proxy) response – the Contact header of the response contains the new target address.
ISC	Account activation triggered by OCS service	No Impact	When the CM attribute <code>mtasChargingSubscriberCreditNotificationOfferEstablishedMediaToTarget</code> is set to "enabled" the initial INVITE request sent to user B after account activation triggered by OCS has been executed, will contain an SDP-offer that is the same as originally sent from the caller. The CM attributes <code>mtasOctRingToneAnn</code> , <code>mtasOctBusyToneAnn</code> and <code>mtasOctGenericFaultAnn</code> was deprecated in MTAS 4.6 and vMTAS 1.6 and instead the Account Activation triggered by OCS service will now use the existing <code>mtasMmtLocalRingbackAnnouncementName</code> , <code>mtasMmtBusyToneAnnouncementName</code> and the <code>mtasMmtBusyToneAnnouncementName</code> CM attributes that must have been configured before the upgrade.
ISC	O-SDS service	No Impact	New enum value 2 (<code>sipEmbeddedTelWithoutPhoneContext</code>) for <code>mtasSdsUriSchema</code> makes it possible to use SIP URI with embedded tel without Phone-Context in O-SDS MO local/national calls
ISC	Ad-hoc Conference	No Impact	Conference service will use IMPU in Refer-to header of REFER message to match existing active session to move to conference based on configuration as a fall back option when no session is found using dialog-id or <code>sessionID</code> in Replaces header.



Table 10 Changed Services

Interface	Service Name	Impact	Description of Change Compared to vMTAS 1.6
SIP	Line Sharing	No Impact	<p>When the CM attribute <code>mtasFcdSuppressEarlyMediaToRelatedUser</code> is set to "enabled" the initial INVITE request sent to related user in a FCD call will contain an Early Media Suppression header if configured in <code>mtasMmtSuppressEarlyMediaHeader</code>.</p> <p>When a feature tag is configured in the CM attribute <code>mtasFcdCallToRelatedUserTag</code> is set to "enabled" the initial INVITE request sent to related user in a FCD call will contain an Accept-Contact header with the configured tag.</p>
Diameter	Line Sharing	No Impact	<p>When the CM attribute <code>mtaschargingProfileReportFipIdInOrigChargingMessages</code> is enabled for online charging and FIP service is active for the calling user the CCR messages on the originating side will contain Subscription-id and calling-Party-Address AVPs set to FIP identity.</p> <p>When the CM attribute <code>mtaschargingProfileReportFipIdInTermChargingMessages</code> is enabled for online charging, and FIP service is active for the called user the CCR messages on the originating side will contain Subscription-id, Called-Asserted-Identity and Calling-Party-Address AVPs set to FIP identity and the Requested-Party-Address AVP will be present at CCR initial and have the contain of the real served user number.</p>
Diameter	Line Sharing	No Impact	<p>When the CM attribute <code>mtaschargingProfileReportFipIdInOrigChargingMessages</code> is enabled for offline charging and FIP service is active for the calling user the CCR messages on the originating side will contain Subscription-id and calling-Party-Address AVPs set to FIP identity.</p> <p>When the CM attribute <code>mtaschargingProfileReportFipIdInTermChargingMessages</code> is enabled for offline charging and FIP service is active for the called user the CCR messages on the originating side will contain Subscription-id, Called-Asserted-Identity and Calling-Party-Address AVPs set to FIP identity.</p>
Ro Initiated Retarget	Subscriber Credit Notification	Minor Impact	Allow Retarget-Instruction or Final-Unit-Indication AVPs to trigger retarget of session at call setup.
Multi-Persona	Common Service	Minor Impact	The Common Service provides Multi-Persona indication information to the Charging component which send this information to the Charging nodes
Enhancements to NPLI support in SCC AS	User Location Service	No Impact	Inclusion of VLR and MSC addresses provided by NPLI into the network-provided P- ANI in SIP signaling and in ANI AVP for offline charging for originating and terminating calls from/to CS domain
IMS Support for UC Mobility	Unified Communication Routing Service	No Impact	Originating/Terminating VoLTE sessions for UC users are routed via the external Unified Communication System. In addition to the UC Routing service; new set of business licenses both for the native and virtual MTAS are introduced.
Ro suppression based on B number	Online Charging	No Impact	The Ro signaling for a call can be suppressed by configuration. By default suppression is disabled.
DSCP markings	SIP Service FW	No Impact	DSCP value will be present in DNS queries.

**Table 10** *Changed Services*

Interface	Service Name	Impact	Description of Change Compared to vMTAS 1.6
Graceful Scale-in VNF work flow (WF)	vMTAS Lifecycle management (LCM)	No Impact	Graceful Scale-in VNF WF is now supported for MTAS on the VNF-LCM.
CAI3G	SOAP	Minor Impact	Because of an earlier fault, when sending fault response for a sent in CAI3G Login message with wrong credentials is in wrong (mixed version) SOAP format. Now MTAS will answer in either 1.1 or 1.2 SOAP version, based on the incoming request version. See HV63884

3.3.2 Other Interface Impacts

The changes to other user services are described in Table 11.

Table 11 *Other Interface Changes*

Source of change	Service	Impact	Description of Changes
HV78946	SSC	No Impact	There are 6 services with SSC codes that doesn't enforce SSC service to be subscribed before allowing use of SSC code. This TR fix introduces 6 new CM attributes, one for each service, that makes it possible to enable check on SSC Service subscription before allowing use of SSC code. If enabled, use of SSC will be prevented in case SSC is not subscribed. Default is legacy behavior. The following CM attributes are added: <code>mtasSscVmEnforceSscSubscribe</code> <code>mtasSscCellAnnEnforceSscSubscribe</code> <code>mtasSscPriorityCallEnforceSscSubscribe</code> <code>mtasSscAbDialEnforceSscSubscribe</code> <code>mtasSscCrEnforceSscSubscribe</code> <code>mtasSscHotlineEnforceSscSubscribe</code>
HV74386	FCD	Minor Impact	Because of an earlier fault FCD service was not adding a mobile terminal selector in the outgoing INVITE for the PRIMARY_MOBILE when configured in <code>mtasFcdAdditionalTermSelectorMobile</code> . Now FCD service will include it.
HV61332	User Location	Minor Impact	Because of an earlier fault at User Location Service MTAS removed the PIDF+XML (Presence) MIME part within the body included in the received INVITE, if it is not in addr-spec format. Now MTAS will reject such requests with 400 Bad request. In case of response message the session will be terminated.
HV81300	Gateway Model	Minor Impact	The Gateway Model service removes precondition attributes in SDP of INVITE before forwarding the request when 'precondition' tag is not present in Supported/Require header.
HV91603	CC	Minor Impact	The measure of CM attribute " <code>mtasCcInbandInvocationTimer</code> " is seconds (see: [6]). It is stored in an internal object in milliseconds. The original value was multiplied by 100 by mistake. Now it is corrected. Consequences: - Using the internal interface (Mp): no change in duration and 'to' values as they need to be sent in 10 ms granularity, however 'mrt' and 'wit' values were sent out in milliseconds, now it is corrected and they are sent out in 10 ms granularity as standard says they need to be. - Using the external interface (Mr): operator might experience duration values being 10 times longer than before in CC scenarios. In case the service fills our internal object with "duration" value, we start a timer. Previously it was started with "duration" × 2, it has been changed to "duration" + 2 seconds. (If MRF does not react before this timer expires MTAS will send a BYE towards it.)
HV88319	Communication Barring	Minor Impact	The Communication Barring service tries to extract MCC from any access-info key-value of PANI header before returning MCC extraction failure result.
HV67706	FIP	Minor Impact	For specific FCP/FIP service interaction case as described in HV98521, FIP AVP will not be reported anymore in ACR STOP.
HV94744	Northbound Call Control	Minor Impact	If the call is rejected or released by CAP ReleaseCall (RC) message, the warning text in rejection or BYE will be updated to "Release Call received from CAP". If the call is released by ACH.ReleaseSelfDurationExceed, the warning text in BYE will be updated to "Credit limit reached".



HV16088	Communication Barring	No Impact	New CM attribute <code>mtasCbVersion</code> : This attribute defines the version of the Communication Barring service used when set to 0 (INITIAL_VERSION) legacy behaviour of the service will be active i.e Communication Barring Service is not forced to add a warning header to each and every rejection case. when set to 1 (VERSION_1) Communication Barring Service is forced to add a warning header to each and every rejection case.
HV91894	IdPres	Minor Impact	from-change options tag re-inserted by user in subsequent in-dialog signaling is removed (i.e. EARLY_UPDATE, INVITE_ACCEPT, ReINVITE + UPDATE and ReINVITE_ACCEPT+ UPDATE_ACCEPT).
HV96929	Hold/OCT	No Impact	Current implementation for SDP offer in INVITE for end-point move was, The MMTel AS shall re-use the last SDP offer from the caller when an initial INVITE is sent to (new) target. MTAS has implemented this requirement. Call flow in the TR shows that the OT is putting User A on hold. So OctService is picking the last SDP (SDP in 200OK from User A for the HOLD Invite) and sending it to User C. This SDP contains 'recvonly' which will be rejected by User B. The TR was solved by making to use the last SDP from User A in the HOLD sequence and modify the media direction in SDP to sendrecv.
HV59547	FIP	Minor Impact	Because of an earlier fault, Originating MTAS was not changing FROM/PAI according to FIP provisioning data in Unregistered case as it should. This issue is now fixed
HV62178	Adhoc Conference Service	Minor Impact	Because of an earlier fault, MTAS was not able to answer messages with ill-formed Tel-Uri in the Refer-To header. Now MTAS is answering with code 416 Unsupported URI Scheme with warning code and "Invalid URI format." warning text.
HV70143	FIP	Minor Impact	Because of an earlier fault, the MtasIdPresFip counter was not incremented when MsnFip was invoked, only when Fip was invoked. Now MTAS is increasing the counter in MsnFip cases as well, so increased counting is possible, if MsnFip is used.
HV61985	Adhoc Conference	Minor Impact	Because of an earlier fault, Long duration call supervision was not considered, when moving a call to conference. Now MTAS is restarting the Long duration call supervision when a session is moved to conference. See the Multi Media Telephony in MTAS document.
HV64259	Number Normalization	Minor Impact	Because of an earlier fault, Number Normalization was not applied for Tel-Uris which contained SSC with #. Now MTAS will apply Number Normalization to those Tel-Uris as well.
HV48535	FCD	Minor Impact	Because of an earlier fault, FCD Service did not put 100rel into the outgoing REINVITE messages. Now FCD Service is adding 100rel into the outgoing REINVITE messages into the Supported header.
HV51184	DEN	Minor Impact	Because of an earlier fault, in case of an active DEN subscription, MTAS could not handle calls after the client was not providing Device identity in the DEN related SUBSCRIBE message. Now MTAS tries to get the Device identity from the earlier sent REGISTER message.
HV60636	ST-AS	Minor Impact	Because of an earlier fault, in case of originating call from an Invalid PBX subscriber, no ACR is triggered from ST-AS. Now MTAS is sending ACR event in this case
HV64418	Emergency State	Minor Impact	In case of Emergency Callback call, every owned device was ringing. Now based on <code>mtasEsCbTag</code> the attributes specifies the tag of the top-most Route header to identify an emergency callback call. MTAS classify served user as being in emergency state if the top-most Route header of an incoming INVITE includes the configured string. Default value is empty, which means that no search of Route header is performed. See the FS 'Emergency State in MTAS' for more details.
HV57010	Sip Overload Control	Minor Impact	Because of an earlier fault, responses for Out of Dialog requests ,other than INVITE and REGISTER, did not contain OC information. Now MTAS is sending OC related info in those responses as well.
HV73662	FSFS	Minor Impact	Because of an earlier fault, FSF header was removed by MMTService independent on CM <code>mtasFsfPatternRemoveFlag</code> . Now MTAS will not remove, if the <code>mtasFsfPatternRemoveFlag</code> is set to 0=DO_NOT_REMOVE
HV76617	GCAC	Minor Impact	Because of an earlier fault, at GCAC Service rejection we used "User Call Admission Control" phrase in the warning strings. Now GCAC will use "Group Call Admission Control" instead.
HV49809	3pty	Minor Impact	Because of an earlier not handled case, during 3pty conference creation the re-INVITE with media mode 'inactive' caused not handled problems at the call, resulting call termination. Now MTAS is rejecting it with SIP 480.



HV74522	AoC	Minor Impact	Because of an earlier fault, AoC Service was not sending AoC information in the 180 Ringing message. Now MTAS is sending this information.
HV77906	CDIV	Minor Impact	Minor impact Because of an earlier fault, MTAS forwarded the RTTI related message body from the C-Party to A-Party in a Call Forwarding Unconditional scenario, in the provisional response. Now MTAS is not forwarding the RTTI related message body in this case.
HV74386	FCD	Minor Impact	Because of an earlier fault, FCD Service did not add configured AdditionalTermSelector if target was PRIMARY_MOBILE and has not been registered. Now MTAS is checking if CM mtasFcdAdditionalTermSelectorMobile has a configured value in this case. If configured, it will add it to the AC header.



4 Impact on MTAS Features

This section shows the impact on the vMTAS 1.8 features when the feature is turned on.

4.1 International Outgoing Call Barring for Wi-Fi Access

MMTel AS applies the roaming/international/international-exHC conditions in the outgoing call barring service, if enabled for the Mobile Subscriber, even when the user initiates the call on Wi-Fi access. For Wi-Fi initiated calls the roaming/international/international-exHC conditions are evaluated with the current country as the home country.

Based on non-3gpp configuration Access for Mobile subscriber is not considered fixed access for Outgoing Communication Barring (OCB) international/international-exHC/Roaming checks.

This feature is controlled by the `mtasCbLocationInTransitMode`, `vtasCbLocationInTransitMode`, `mtasMmtMobileUserDetermination`, and `vtasMmtMobileUserDetermination` CM attributes.

Impact

No impact on capacity, performance, network elements, and operation.

4.2 Display MDUCAC Calls as Available for Call Pull

When setting the exclusive element, the MMTel AS Communication State Exposure evaluates the Multi-Device User Call Admission Control (MDUCAC) sent in the NOTIFY messages for DEN Service Subscription, as specified in RFC7463.

The dialog event subscriber is informed, if a session cannot be pulled owing to MDUCAC limits restrictions.

Impact

No impact on capacity, performance, network elements, and operation.

4.3 IMEI in MMTel AS Charging

For a single, registered device, the MMTel AS provides International Mobile Station Equipment Identity (IMEI) number in the User-Equipment-Info AVP and Instance-ID AVP over both Ro and Rf interfaces. SCC AS provides the

IMEI number in the User-Equipment-Info AVP and Instance-ID AVP only over the Rf interface.

The reporting of the User-Equipment-Info AVP and Instance-ID AVP is only applicable for terminating charging.

Sending of new AVPs is omitted with the `mtasChargingProfileOmitAcr` and `mtasChargingProfileOmitCcr` CM attributes.

Impact

No impact on capacity, performance, network elements, and operation.

4.4 Destination-based CAP Triggering

The enhancement includes the following features:

- The originating MMTel AS is able to trigger CAMEL Application Part International Dialing Prefix (CAP IDP) for certain dialed B-Numbers
- Individual B-Numbers and B-Number series are configurable
- The Signaling Control Point (SCP) address is configurable for every B-Number
- The destination-based CAP trigger replaces the subscription-based CAP trigger

If `mtasNccBNumberBasedTrigger` is enabled, the IDP sending can be triggered by B-Number matching function.

This feature is controlled with the following CM attributes: `mtasNccBNumberBasedTrigger`, `mtasNccBNumberList`, and `mtasSsfReportSsiToCharging`.

Impact

No impact on capacity, performance, network elements, and operation.

4.5 Addition of Two Subscriber Transparent Data and CS-Retry Prefix

SCC AS supports selection of Circuit Switch Routing Number (CSRN) prefix (for TADS) based on the MMTel AS provisioned subscriber transparent data. SCC AS supports removal of Country Code from the CSRN before adding the CSRN prefix for all CSRN prefixes. This is supported for CSRN prefixes with overdecadic digits.



This feature is controlled with the `mtasTadsRegion`, `mtasTadsRegionCsrnPrefix`, and `mtasTadsDenormalizeAllCsrn` CM attributes.

Impact

No impact on capacity, performance, network elements, and operation.

4.6 Backward ICBS Parameter for FCD Primary User

When MMTel AS executes Flexible Communication Distribution (FCD) and receives backward Interconnection Charge Billing System (ICBS) parameters of the FCD target users in the SIP responses, MMTel AS does not forward the ICBS parameters transparently to the originating network. Instead, MMTel AS returns the backward ICBS parameters of the primary FCD user to the originating network.

This feature is controlled with the `mtasJcBackwardIcbsBehavior` CM attribute.

Impact

No impact on capacity, performance, network elements, and operation.

4.7 Configurable FCH Parameters for Japanese Charging Service

New Configurable Flexible Charging (FCH) parameters are introduced and optional configuration-based behavior to send backward ICBS parameter of FCD primary user towards the originating network is available.

Configurable FCH parameters for Japanese Charging service are introduced with default values from hard-coded settings in the design base.

This feature is controlled with the following CM attributes: `mtasJcFchChargeRateNoflex`, `mtasJcFchChargeRateOrdinary1`, `mtasJcFchChargeRateOrdinary2`, `mtasJcFchChargeRatePayphone1`, and `mtasJcFchChargeRatePayphone2`.

Impact

No impact on capacity, performance, network elements, and operation.

4.8 Include SDP Offer in re-INVITE for Moving to an Ad-hoc Conference

MMTel AS supports optional configuration-based behavior to carry Session Description Protocol (SDP) in `re-INVITE` when moving in an existing session to an Ad-hoc Conference.

The following options are supported:

- The SDP offer in the `re-INVITE` is based on the codec list received from the conference mixer (MRF/MRFP)
- The SDP offer in the `re-INVITE` is based on the last negotiated SDP of the ongoing session

This feature is controlled with the `mtasConfMoveCodecOfferingMode` and `vtasConfMoveCodecOfferingMode` CM attributes.

Impact

No impact on capacity, performance, network elements, and operation.

4.9 SIP URI without Phone-context for SCC AS

New ENUM value 2 in the `sipEmbeddedTelWithoutPhoneContext` for `mtasSdsUriSchema` allows use of SIP URI with embedded tel without Phone-Context in the Originating Session Data Services (O-SDS) MO local/national calls.

At MO, Call Out Of the Blue from SCC AS in the role of break out for Business Mobility when SIP URI is configured. There is no phone context added to it when called party is local/national number.

The SIP URI has the `<local-B-number>@ims.mnc<MNC>.mcc<MCC>.3gppnetwork.org; user=phone` format sip.

This feature is controlled with `mtasSdsUriSchema` CM attribute.

Impact

No impact on capacity, performance, network elements, and operation.

4.10 SDP Offer for Initial INVITE to New Target for Account Activation

When the CM attribute `mtasChargingSubscriberCreditNotificationOfferEstablishedMediaToTarget` is enabled, the MMTel AS reuses the



last SDP offer from the caller, when an initial `INVITE` is sent to target involving OCS triggered Account Activation, to UE-B. In the SDP offer to the new target, MMTel AS is deactivating any media lines which were deactivated during establishment or during the lifetime of the original session to the old target by setting the corresponding port to 0.

This feature is controlled with the `mtasChargingSubscriberCreditNotificationOfferEstablishedMediaToTarget` CM attribute.

Impact

No impact on capacity, performance, network elements, and operation.

4.11 Rebalancing by Moving Users between MTAS Instances

MTAS supports redistribution of the registering users, where all the initial, the re-registration and de-registration procedures are in the scope of the redistribution/re-balancing. If the Rebalancing feature is active, the initial and `re-REGISTER` requests are redirected to a configurable destination address (target SIP URI) by rejecting the request with a 305 (Use Proxy) response. The Contact header of the response contains the new target address and the de-registration procedure starts on the de-registration of the last contact.

The redistribution procedure stops automatically if the number of registered users on the node falls below a configurable threshold. The operator is able to start and stop the redistribution procedure manually and check if the Rebalancing is in progress.

This feature is controlled with the following CM attributes: `mtasReBalancingAdministrativeState`, `mtasReBalancingState`, `mtasReBalancingTargetNodeSipUri`, `mtasReBalancingThreshold`, and actions: `mtasReBalancingActivate`, `mtasReBalancingDeactivate`.

Impact

No impact on capacity, performance, network elements, and operation.

4.12 Match Existing Session in Move Active Session to Existing Conference

MMTelAS Ad-hoc Conference Service can use the IP Multimedia Public Identity (IMPU) in the Refer-to header to match the active session on MTAS, instead of using dialog-id in Replaces header.

Conference service uses IMPU in Refer-to header of `REFER` message to match existing active session to move to conference based on configuration, as a fall

back option when no session is found using dialog-ID or session-ID in Replaces header.

This feature is controlled with the `mtasConfImpuBasedMoveInEnabled` and `vtasConfImpuBasedMoveInEnabled` CM attributes.

Impact

No impact on capacity, performance, network elements, and operation.

4.13 Network Level Licensing of Feature Licenses in MTAS – CLOUD

- vMTAS support licensing control for MMTel-AS and SCC-AS services.
- vMTAS must be configured to connect to a network license server (NeLS) that hosts the purchased licenses.
- NeLS Server configuration parameters found under `ManagedElement=1, SystemFunctions=1, Lm=1`
- Multiple instances of vMTAS are deployed in a customer network – each instance can be connected to the same NeLS and receive the same feature permissions as defined in the installed license for that VNF type.
- Each license key defined in the license affect a set of related features. Related feature sets should correspond to at least one and optionally more than one Base/Value pack as defined in the vMTAS's commercial model unless a strong motivation for more granular licensing control exists.

Impact

If no license information is available to vMTAS (Example: the license has not been purchased and installed in NeLS and Configuration of Nels in vMTAS), vMTAS will not provide services belonging to MMTel AS, SCC AS.

4.14 Generation of 180 Ringing in MMTel AS at the Reception of 183 Session Progress

Originating and Terminating MMTel AS triggers 180 Ringing as an indication of reaching to alerting state when end to end preconditions are fulfilled after receiving 183 Session Progress and PANI matched to specific configured Access types

This feature is controlled by the `mtasAsIwSessionProgressMappingOnPreconditionEnabled` CM attribute which extends functionality of the `mtasAsIwSessionProgressMapping` CM attribute.



Impact

No impact on capacity, performance, network elements, and operation.

4.15 Extension Number Support (Line Sharing Phase 1.0+)

The Extension Number Support in MMTel Supports the following new functions:

- Offers the possibility to include an early media suppression header on FCD calls to related users, if early media suppression is included, media direction in SDP is set to sendreceive. If an early update is received from related user with only IP address or code change before 200 OK this SDP is stored and used later towards the caller. If early UPDATE is received from related user with a new codec offer, the codec offer is answered with a dummy SDP. A timer is started and at timer expiry an early UPDATE is sent. with the same SDP as in the original SDP-offer, but considering also the already rejected media lines.
- If an early media suppression header is included in initial INVITE in an originating or terminating MMTel AS, services, if invoked, suppresses playing any locally generated early media.
- Offers the possibility to add an Accept-Contact header with a FCD feature tag in initial INVITE sent in FCD call to related users. This feature tag for example can be used on the terminating side to suppress services at the related user.
- • Offers a possibility on user level to report FIP Id in Subscription-Id and Calling-Party-Address AVPs in originating online and or offline charging messages if the served user is provisioned with FIP service
- • Offers a possibility on user level to report FIP Id instead of user's real number in Subscription-Id, Called-Party Address and Called-Asserted-Identity AVPs in terminating online and or offline charging depending on if the served user is provisioned with the FIP service.

Extension Number Support can be controlled with following Configuration attributes:

- `mtasFcdSuppressEarlyMediaToRelatedUser`
- `mtasFcdCallToRelatedUserTag`
- `mtasFcdSuppressOnlineChargingOnRelatedUser`
- `mtasChargingProfileReportFipIdInOrigChargingMessages`
- `mtasChargingProfileReportFipIdInTermChargingMessages`



Impact

No impact on capacity, performance, network elements, and operation.

4.16 Generic Ro Initiated Retarget in MMTel AS

Ro Initiated Retarget allows OCS to trigger session retarget at call setup through Retarget Instruction or Final Unit Indication AVPs in initial Credit Control Answer.

Impact

No impact on capacity, performance, network elements, and operation.

4.17 Multi-Persona: Alternative Line Identity for Voice Calls

MTAS supports the “Multi-Persona” feature. When an alternative persona is used, MTAS adds Multi-Persona indication in the charging messages and sends this information to the charging nodes.

Impact

No impact on capacity, performance, network elements, and operation.

4.18 Enhancements to NPLI support in SCC AS

MTAS includes the VLR and MSC addresses provided by NPLI into the network-provided P- ANI in SIP signaling and in ANI AVP for offline charging for originating and terminating calls from/to CS domain if configured in attributes `mtasSccNpliOriginatingCSLocationInformation` and `mtasSccNpliTerminatingCSLocationInformation`. If there is no CS Access-Type available in the P-ANI header the Access-Type configured in `mtasSccNpliDefaultCSAccessType` is used.

Impact

No impact on capacity, performance, network elements, and operation.

4.19 IMS Support for UC Mobility

MTAS supports the business users and routes their VoLTE calls to the non-IMS external unified communication system to execute the enterprise services. A new business licensing structure enables the MMTel business features.

**Impact**

No impact on capacity, performance, network elements, and operation.

4.20 Suppressing of Online Charging based on B number

It is possible to suppress Ro in case the B number is classified as toll-free.

Impact

- Not possible to perform credit control on such calls
- Not possible to get announcements initiated by OCS since there will be no CCA[initial] and thus no announcement instruction.
- Account activation via Prompt And Collect will be bypassed since the function is triggered by AVPs in CCA[initial], which will not be sent if the session is suppressed.

4.21 DSCP Markings

It is possible to define Differentiated Services Code Point (DSCP) value for all DNS sockets. This applies for both TCP and UDP sockets used by DNS Resolver.

Impact

No impact on capacity, performance, network elements, and operation.

4.22 Graceful Scale-in WF

The user interface (UI) of the VNF-LCM can be used to gracefully scale-in scaled PL VMs. The user can specify the number of scaled PL VMs to be removed from the VNF.

Impact

The capacity of vMTAS can be gracefully decreased from the UI of VNF-LCM.

4.23 Enhancements of Offline Charging Interim ACR Handling

- An additional ACR[Interim] are generated per Long Duration Timer period. The Long Duration Timer is configurable using



`mtasChargingProfileLongDurationInterimTimer` configuration parameter.

- New Interim-Reason AVP is reported for Interim-Interval Timer Triggered ACR[Interim], Media Change Triggered ACR[Interim] and Long Duration Timer Triggered ACR[Interim]. The Interim-Reason AVP is in the omit list by default.
- The design-base spread (up to 2%) of Interim-Interval Value is configurable by the new configuration parameter `mtasChargingProfileInterimIntervalSpread`.

Impact

- The Long Duration Timer is disabled by default.
- The Interim-Reason AVP is in the omit list by default.
- The Interim-Interval Value spread is disabled by default for new installations and enabled for existing installations during upgrade procedure.