

vMTAS Network Impact Report from 1.7 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 1.7. 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

- 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

- 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 17.





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 1.7.

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 1.7
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 1.7
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"
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 1.7
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.
ISC	SIP	No impact	Warning header is added for 503 response, in case of license failure for Mmtel and SCC license.

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 1.7
Sh	Diameter	-	New service "Multi-Persona" introduces a new element: <operator-multi-persona>
Sh	Diameter	-	MTAS supports the parsing of the IMSPublicIdentity from the ImplicitIdentities. E.g.: <Sh-Data> <Extension> <ImplicitIdentities> <IMSPublicIdentity>sip:+17014801382@test.com </IMSPublicIdentity> <IMSPublicIdentity>tel:+17014801382</IMSPublicIdentity> </ImplicitIdentities> </Extension> </Sh-Data>



Interface	Protocol	Impact	Description of Change Compared to vMTAS 1.7
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 <common-data> is added:</p> <pre><mc:subscriber-type>BUSINESS</mc:subscriber-type></pre> <p>New XML element under <user-common-data> is added:</p> <pre><mc:ucr-served-identity>tel:+4610123456</mc:ucr-served-identity></pre> <p>Note: Corresponding Sh elements are added on the Sh interface.</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
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.



Attribute Name	Description of Change
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”.
mtasSscAbDialEnforceSscSubscribe	Attribute description updated. Changed “AbDial Service” to “Abbreviated Dialing Service”.
vtasSscAbDialEnforceSscSubscribe	Attribute description updated. Changed “AbDial Service” to “Abbreviated Dialing Service”.
mtasSubsDataRegEventNotifier	Description has been changed

3.2.2.2 Deleted Attributes

No deleted attributes for 1.7

3.2.2.3 Deprecated Attributes

No deprecated attributes for 1.7

3.2.2.4 New Attributes

The new attributes are shown in Table 5.

Table 5 New Attributes

Attribute Name	Description
DNS.DnsDscpValue	Added and supported
mtasAsIwSessionProgressMappingOnPreconditionEnabled	Now supported
mtasCbVersion	Now supported
mtasChargingProfileInterimIntervalSpread	Added, but not supported
mtasChargingProfileLongDurationInterimTimer	Added and supported
mtasChargingProfileReportFipIdInOrigChargingMessages	Now supported
mtasChargingProfileReportFipIdInTermChargingMessages	Now supported
mtasCwSend180RingingAfterPreconditionNegotiation	Added and supported
mtasChargingProfileRoSuppressionOnBNumber	Added and supported
mtasFcdCallToRelatedUserTag	Now supported
mtasFcdSuppressEarlyMediaToRelatedUser	Added, but not supported
mtasFcdSuppressOrigOnlineChargingToRelatedUser	Now supported
mtasFcdSuppressOnlineChargingOnRelatedUser	Added but not Supported
mtasFcdEarlyMediaSuppressionHeaderToRelatedUser	Now supported
mtasMmtServedSubscriberType	Added and supported



Attribute Name	Description
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
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
mtasUCRoutingNormalizedNumberHeader	Added and supported
mtasUCRoutingOriginalDestinationNumberHeader	Added and supported
mtasUCRoutingPSUHeader	Added and supported
mtasUCRoutingTermReceivedNumberHeader	Added and supported
mtasUCRoutingTermTrunkResponse	Added and supported
vtasCbVersion	Added but not Supported
vtasFcdCallToRelatedUserTag	Now supported
vtasFcdSuppressOrigOnlineChargingToRelatedUser	Now supported
vtasFcdSuppressOnlineChargingOnRelatedUser	Added but not Supported
vtasFcdEarlyMediaSuppressionHeaderToRelatedUser	Now supported
vtasSscAbDialEnforceSscSubscribe	Added and supported



Attribute Name	Description
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
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 6.

Table 6 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 <code>mtasMmtAdministrativeState</code> 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 <code>mtasSsfCaps2AdministrativeState</code> 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 <code>mtasDnmAdministrativeState</code> is unlocked.
MtasLicenses, BL Multimedia License Absent	Raised when MMTel is configured for business usage and BL Multimedia license is absent when the <code>mtasVideoFBAdministrativeState</code> 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>mtasPsfAdministrativeState</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 or obsolete counters.

3.2.6.1 New Counters

The new counters are shown in Table 7.

Table 7 New Counters

Counter Name	Description
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 8.

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 8 Changed Services

Interface	Service Name	Impact	Description of Change Compared to vMTAS
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>

Table 8 *Changed Services*

Interface	Service Name	Impact	Description of Change Compared to vMTAS
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 configuratio. By default suppression is disabled.
DSCP markings	SIP Service FW	No Impact	DSCP value will be present in DNS queries.
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.

3.3.2 Other Interface Impacts

The changes to other user services are described in Table 9.



Table 9 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.ReleaselfDurationExceed, 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.





4 Impact on MTAS Features

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

4.1 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.

4.2 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.

4.3 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.

4.4 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.

4.5 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.

4.6 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.

4.7 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.

4.8 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.

4.9 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.

4.10 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.

4.11 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.