SWS-230017

Maritime perspective on Release 19 content

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NOTE: This contribution is developed together with IALA Secretariat.

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Outline

- Consideration
- Overall view on Rel-19 content (SA2 topics)
- Summary

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Consideration (1/2)

- Safety of Navigation (SoN) including AtoN* and VTS** is moving towards digital transformation.

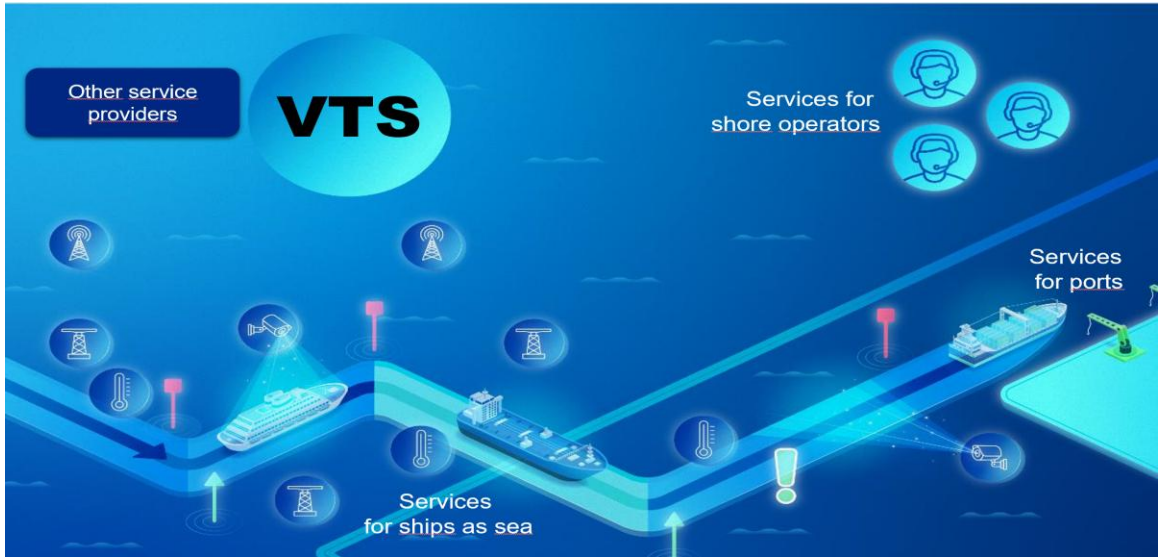

Image source: FinTraffic VTS ltd

*AtoN: Aids to Navigation **VTS: Vessel Traffic System

- Ships are moving towards digital transformation as autonomous ships.

Maritime Autonomous Surface Ships (MASS)

Image source: www.KASSproject.org

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Consideration (2/2)

Priorities of Maritime Demands

Coverage / Positioning
(INCLUDING THE SUPPORT OF MULTI-CONNECTIVITIES)

» **IoT, Broadcasting, etc.**

» **Globally harmonized interoperability**

» . . .

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SWS-230017

Overall View on Rel-19 Content (SA2 topics)

S.NO.	Title	Brief Description and Key Objectives	Related Stage-1 Study/Work Item	Lead Stage-2 WG	RAN dependencies	Other WG dependencies
1.	**Proximity-based services in 5GS Phase 3**	5G System enhancements to support Proximity Services, based on what has been specified in Rel-17 and Rel-18, and based on the services requirements defined in TS 22.278, TS 22.261 and TS 22.115.	Yes, TS 22.261 / TS 22.278 / TS 22.115	SA2	Yes	SA3, SA5 (maybe)
2.	**Architecture Enhancements for Vehicle Mounted Relays (VMR) Phase 2**	5G architecture and system level enhancements to further evolve the functionalities of base station relays mounted on vehicles	Yes, TS 22.261	SA2	Yes	SA3, SA5
3.	**Upper layer traffic steering, switching and split over dual 3GPP access**	To enhance the 5G system architecture to address how an MA PDU Session can simultaneously support two 3GPP access paths which are following cases: 1) terrestrial NR plus terrestrial NR; 2) terrestrial NR plus terrestrial E-UTRA (e.g. using a combined EPC and 5GC); 3) terrestrial NR plus non-terrestrial NR; 4) dual non-terrestrial NR (e.g. using same or different NTN orbits, e.g., GEO/MEO/LEO).	Yes, TR 22.841	SA2	Maybe	Don't know yet
4.	**Integration of satellite components in the 5G architecture Phase 3**	Further 3GPP core network functions enhancements to support satellite access	Yes, TR 22.865	SA2	Yes	SA3, SA5

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Overall View on Rel-19 Content (SA2 topics)

S.NO.	Title	Brief Description and Key Objectives	Related Stage-1 Study/Work Item	Lead Stage-2 WG	RAN dependencies	Other WG dependencies
5.	**Artificial Intelligence (AI)/Machine Learning (ML) for 5GS Service to enable 5GC and Air interface Intelligence**	Continue improving support of AI / ML Model Transfer Phase 2 (new requirements from SA1) with new use cases and potential service and performance requirements to support efficient AI/ML operations using direct device connection.	Yes, TR22.876	SA2	Yes	SA3, SA5, SA6, CT WGs (TBD)
6.	**Architecture Enhancement for Integrated Sensing and Communication**	5G system support for NR-based sensing capabilities to get information about characteristics of the environment and/or objects within the environment (e.g., shape, size, orientation, speed, location, distances or relative motion between objects, etc.) using NR RF signals.	Yes, TR 22.837	SA2	Yes	SA3 for security, SA5 for charging
7.	**Architecture enhancement of Ambient power-enabled Internet of Things**	Zero/Ultra low energy devices with ambient energy harvesting (RF / solar)	Yes, TR22.840	SA2	Yes	SA3, CT1, others (TBD)

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Summary

- Priorities for Release 19 content from maritime perspective

Related to coverage expansion

1. Proximity-based services in 5GS Phase 3
2. Architecture Enhancements for Vehicle Mounted Relays (VMR) Phase 2
3. Upper layer traffic steering, switching and split over dual 3GPP access
4. Integration of satellite components in the 5G architecture Phase 3
5. Artificial Intelligence (AI)/Machine Learning (ML) for 5GS Service to enable 5GC and Air interface Intelligence
6. Architecture Enhancement for Integrated Sensing and Communication
7. Architecture enhancement of Ambient power-enabled Internet of Things

Related to IoT

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