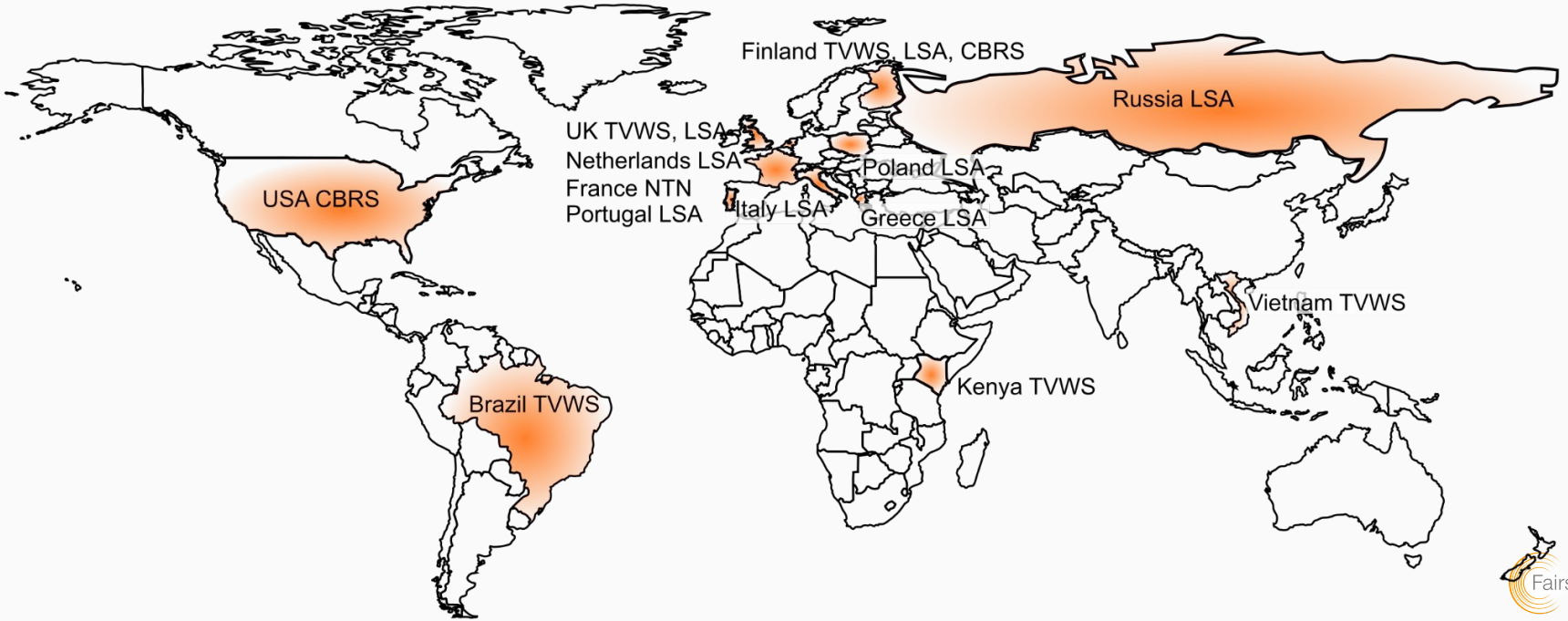
Spectrum Sharing initiatives in Europe

Heikki Kokkinen, Fairspectrum

Fairspectrum

International spectrum management systems of Fairspectrum



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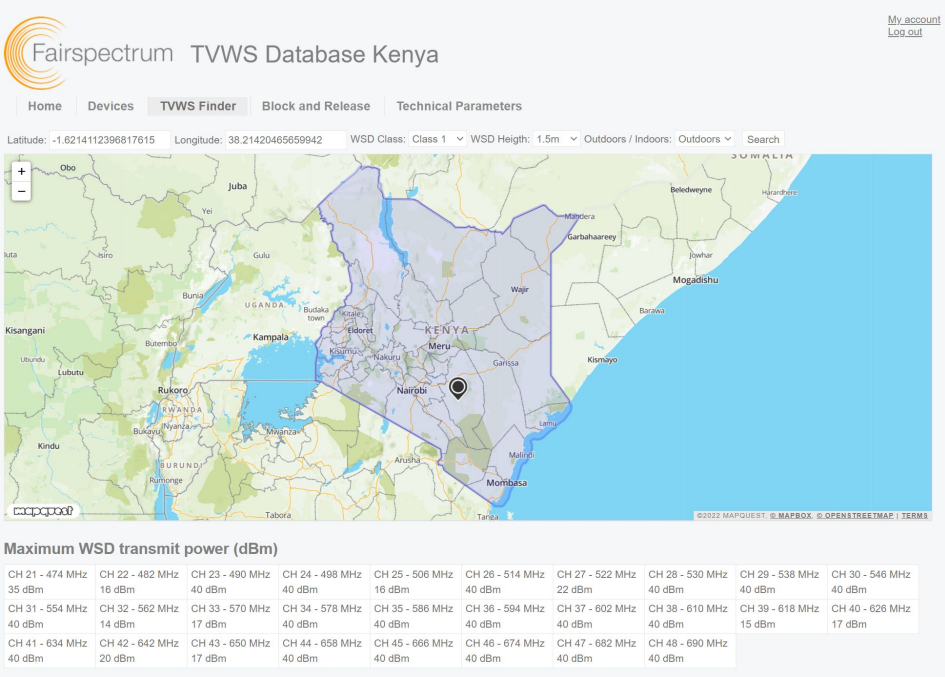

Fairspectrum tools

- LSA PMSE reservations in the Netherlands
- TVWS in Kenya and in the UK
- CBRS SAS implementation passing all public test cases
- NTN - TN sharing, simulation tool
- LSA Portugal sensing the secondary spectrum user
- AFC for deployments outside USA
- Tool for private 5G network reservations

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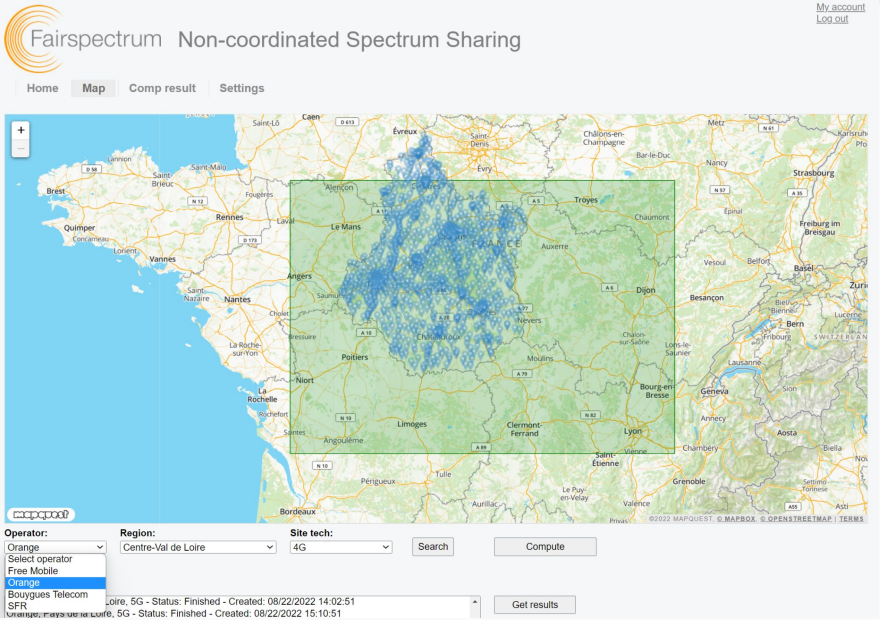
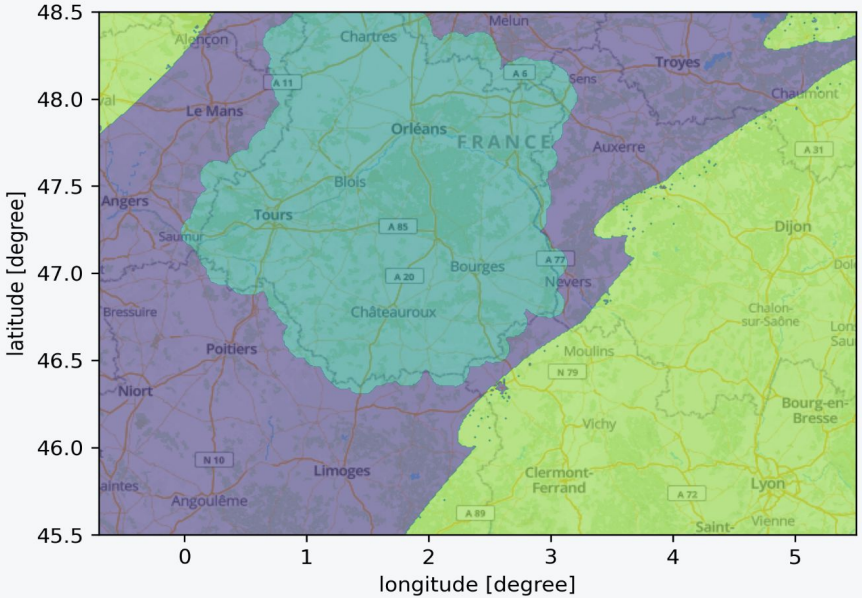
TN selection and visualization of NTN - TN spectrum sharing





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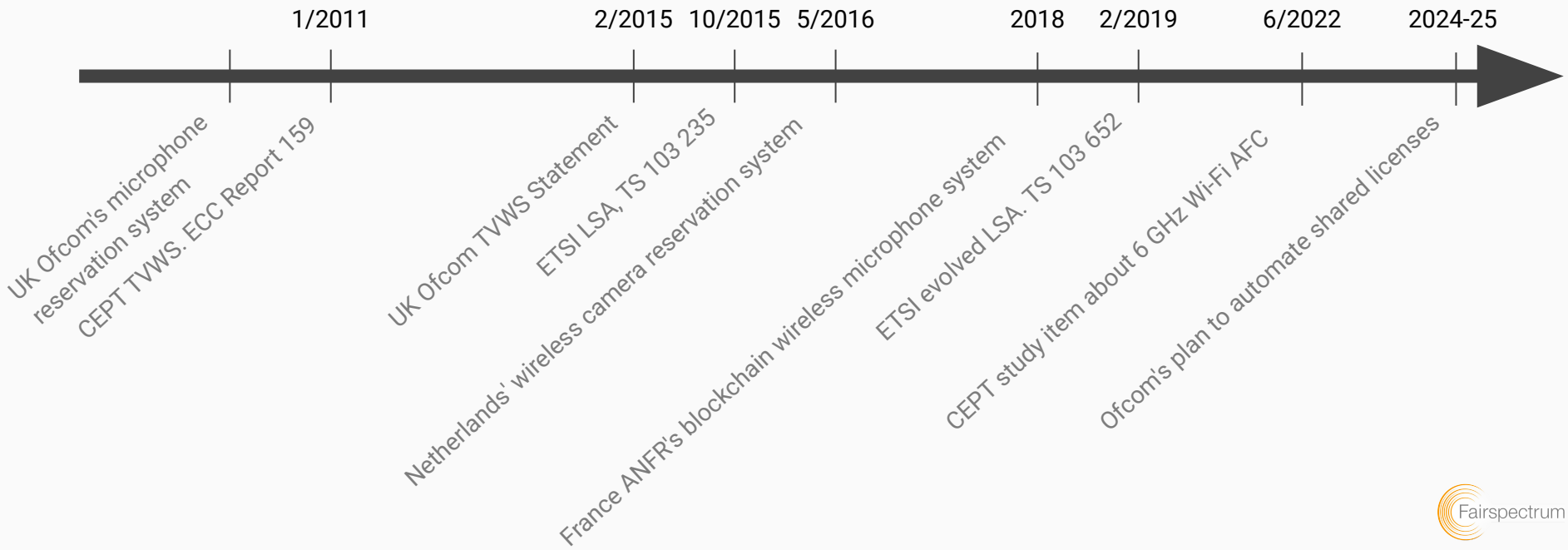
Short history of DSA in Europe



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European approach to DSA and automated spectrum management

- Automated Non-Public Network licensing (Ofcom, UK), pilot of Incumbent protection of Non-Public Networks 3.8-4.2 GHz (NL)
- Coordination between dynamic spectrum users (wireless cameras, NL; wireless microphones, FR)
- 6 GHz AFC study item in CEPT
- Studies about tactical bubbles in critical communication

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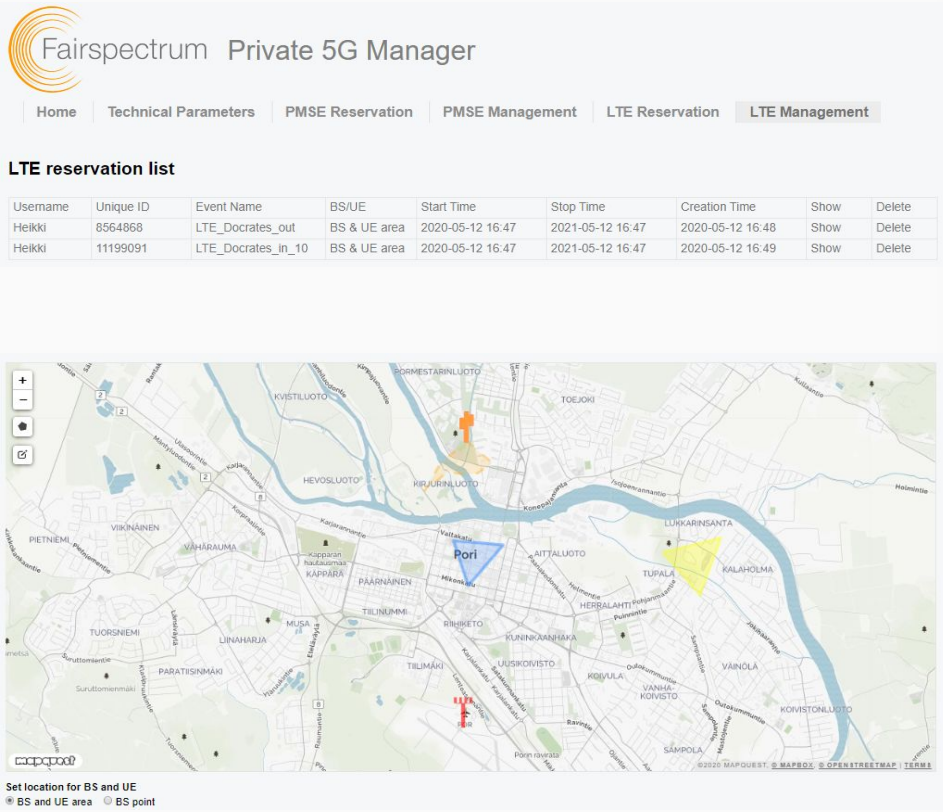

Automated Non-Public Network (NPN) licensing

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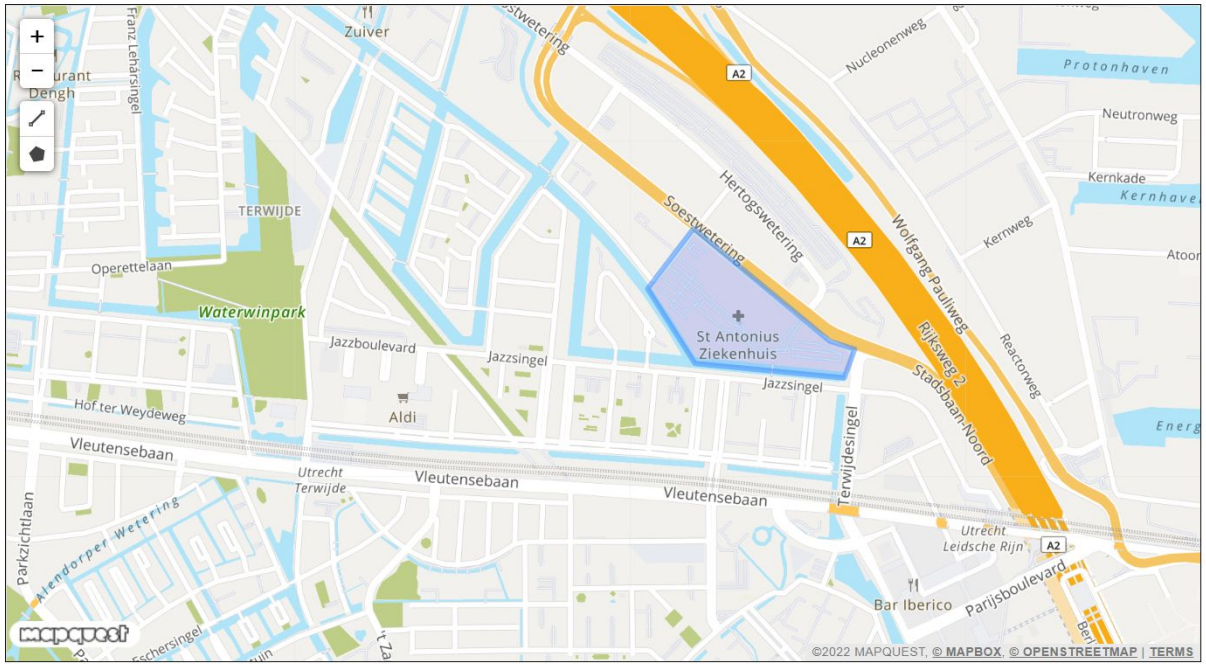
Coordination between dynamic spectrum users

Program Making and Special Events (PMSE)

Agentschap Telecom
Ministerie van Economische Zaken en Klimaat

New reservation | My reservations | Reservations and Blockings | Change Profile | Feedback | Documentation

New reservation



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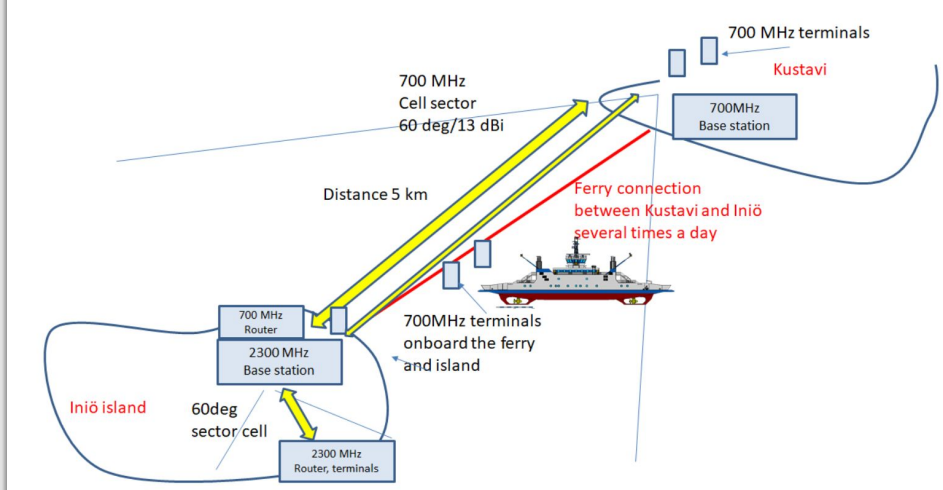
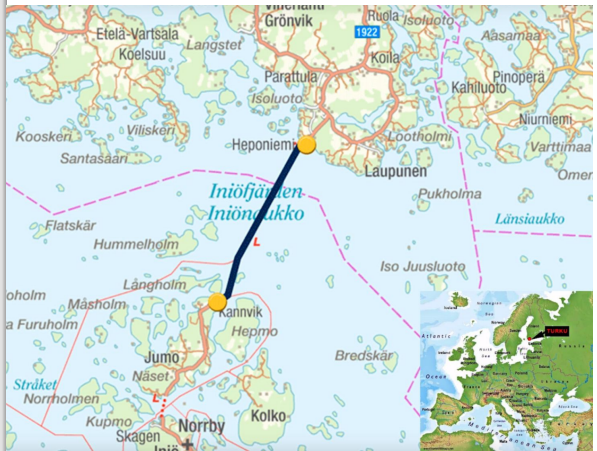
CEPT WG FM: AFC Study item

- New work item on Higher power WAS/RLAN in 5945-6425 MHz

- Higher power Wireless Access Systems including Radio Local Area Networks (WAS/RLAN) including the use of equipment with up to 4 W e.i.r.p. in the 5945-6425 MHz frequency band using a dynamic spectrum usage coordination.
- Study the feasibility of introducing a dynamic spectrum access coordination function under which WAS/RLAN up to 4W could operate and coexist with existing services in the 5945-6425 MHz frequency band and in adjacent bands. This work will include:
- Define the technical and operational requirements for a dynamic spectrum access coordination function that enables an efficient and safe sharing between high power output RLAN and existing services (in band and in adjacent bands)
- Based on the results of compatibility and co-existence studies, propose technical conditions for high output power RLAN that ensure the protection of existing services (in band and in adjacent bands)
- Propose a regulatory framework to enable European and/or national implementation
- Issues related to cross border co-ordination

Studies about tactical bubbles in critical communication





Hallio, Juhani & Ekman, Reijo & Kalliovaara, Juha & Lakner, Tibor & Auranen, Jani & Arajärvi, Antti & Jokela, Tero & Paavola, Jarkko & Kokkinen, Heikki & Savunen, Tapio & Rantanen, Heikki. (2019). Rapidly Deployable Network System for Critical Communications in Remote Locations. 10.1109/BMSB47279.2019.8971954.

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Observations

- In Europe, MNO networks have great reliability, coverage, capacity, reasonable pricing without data limits. They are the primary solution for new wireless access networks in Europe.
- A recent trend has been to allocate a part of new IMT bands to Non-Public Networks. A First come first served reservation system would help finding spectrum and getting a radio license.
- DSA can be used for incumbent protection to allow Non-Public Networks e.g. in the 3.8-4.2 GHz band
- DSA would provide most benefits if two or more spectrum users sharing the same frequency band are dynamic.
- Spectrum users, who access spectrum dynamically (PMSE), would benefit from a dynamic reservation system to assign the spectrum between industry's own user groups in First come first served manner.
- Adoption of AFC would improve the applicability of 6 GHz Wi-Fi in applications which require (high) standard power.
- Spectrum sharing with and in NGSO satellite communication systems, requires highly sophisticated DSA.
- Tactical bubbles are studied for critical communications.


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