2025

SureVoice Solid

The Clear Connection.

MEP

About

- MEP
  - Manufacturer of Voice Communication Systems
  - Air Traffic and Maritime Communication
- Peter
  - 2007: started at MEP
  - Expertise in critical communication
  - Head of software development

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SureVoice VCS

- 24/7 availability
- Low power consumption
- Scalable

SureVoice Solid

- Processing of 500 VoIP connections
- 4x 1Gbit ethernet
- Redundant power supplies
- 1U high
- Boot time < 1 minute

Safety

- Air Traffic market is safety oriented
- European regulations mandatory in 2027
- Air Traffic software development standards: ED-153 / ED-109A
- Safety case based on burden of proof

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Platform selection

SureVoice SOLID

- Hardware selection: NXP i.MX8X 64-bit quadcore ARM
  - Multiple ethernet interfaces
  - Usable for both SureVoice Solid and Panels
- Kernel selection: seL4
  - Safety argument
  - Board support
  - Cost
  - Mixed criticality

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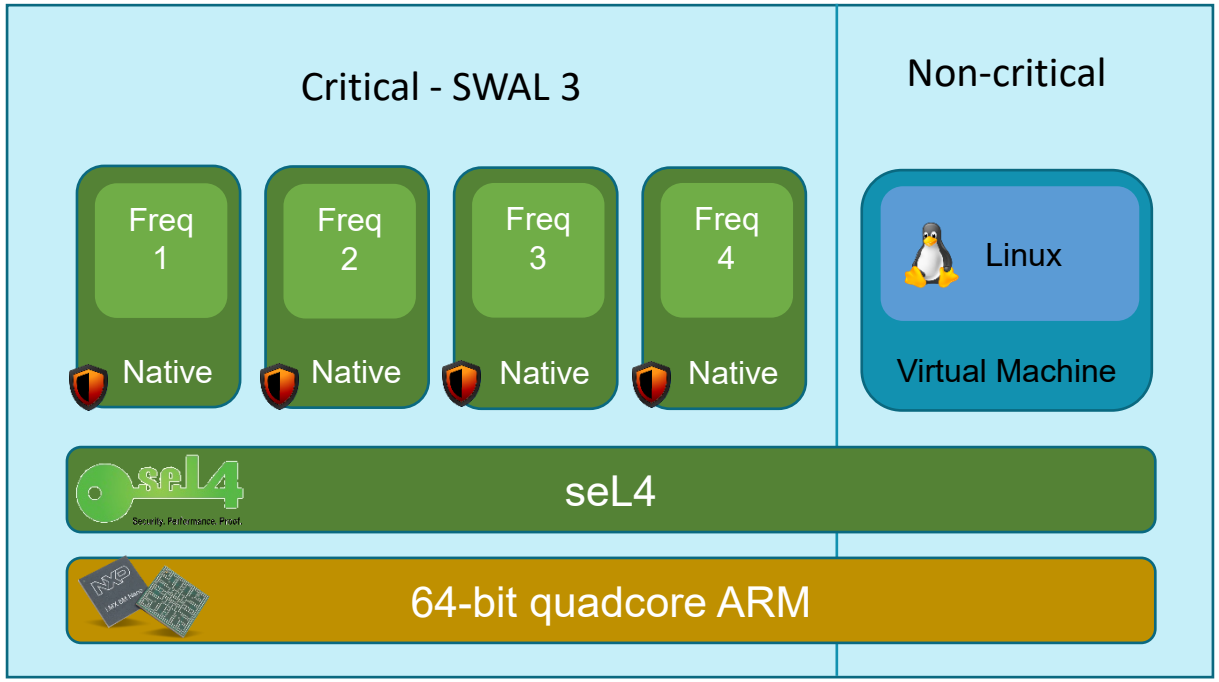
Mixed criticality

- Critical communications in seL4
- Secondary processes in Linux



Separation

SureVoice SOLID

- Peripherals are assigned to either the seL4 application or Linux VM
- Memory partitioning
  - seL4 application
  - Linux
  - Shared for intercommunication
- Monitoring service to (re)spawn the application and Linux VM

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Flexible deployment

SureVoice SOLID

- Dedicated peripheral processes
  - Special capabilities
- Generic processes
  - Memory partitions
  - Generic capabilities
  - Configuration based launch

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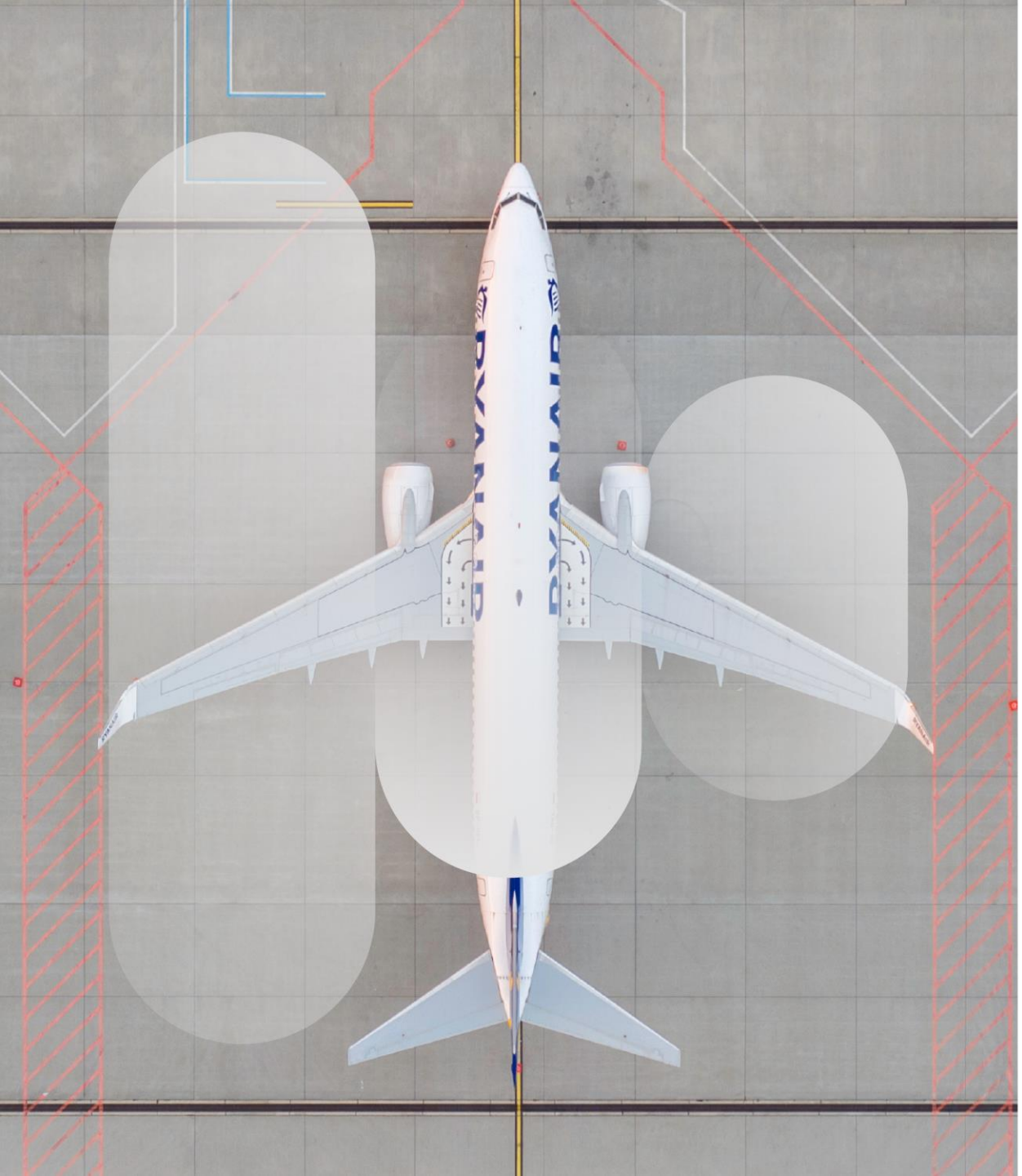
Feedback

- Customers are positive about the design
- No forced OS updates due to seL4



Thank you

The Clear Connection.