

Functional monitoring and performance analysis with **Tessent Embedded Analytics**

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SIEMENS

Tessent Embedded Analytics

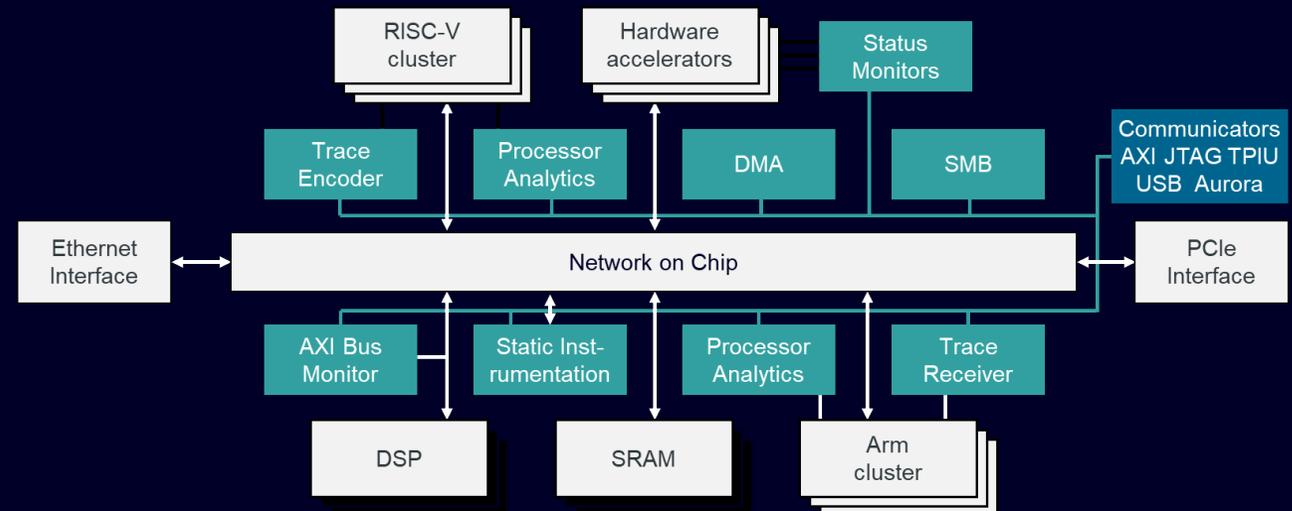
Observing non-intrusively if your SoC behaves as it was meant to

Full visibility into HW/SW interactions in deployed systems enabling optimizations and debugging throughout the entire system lifecycle

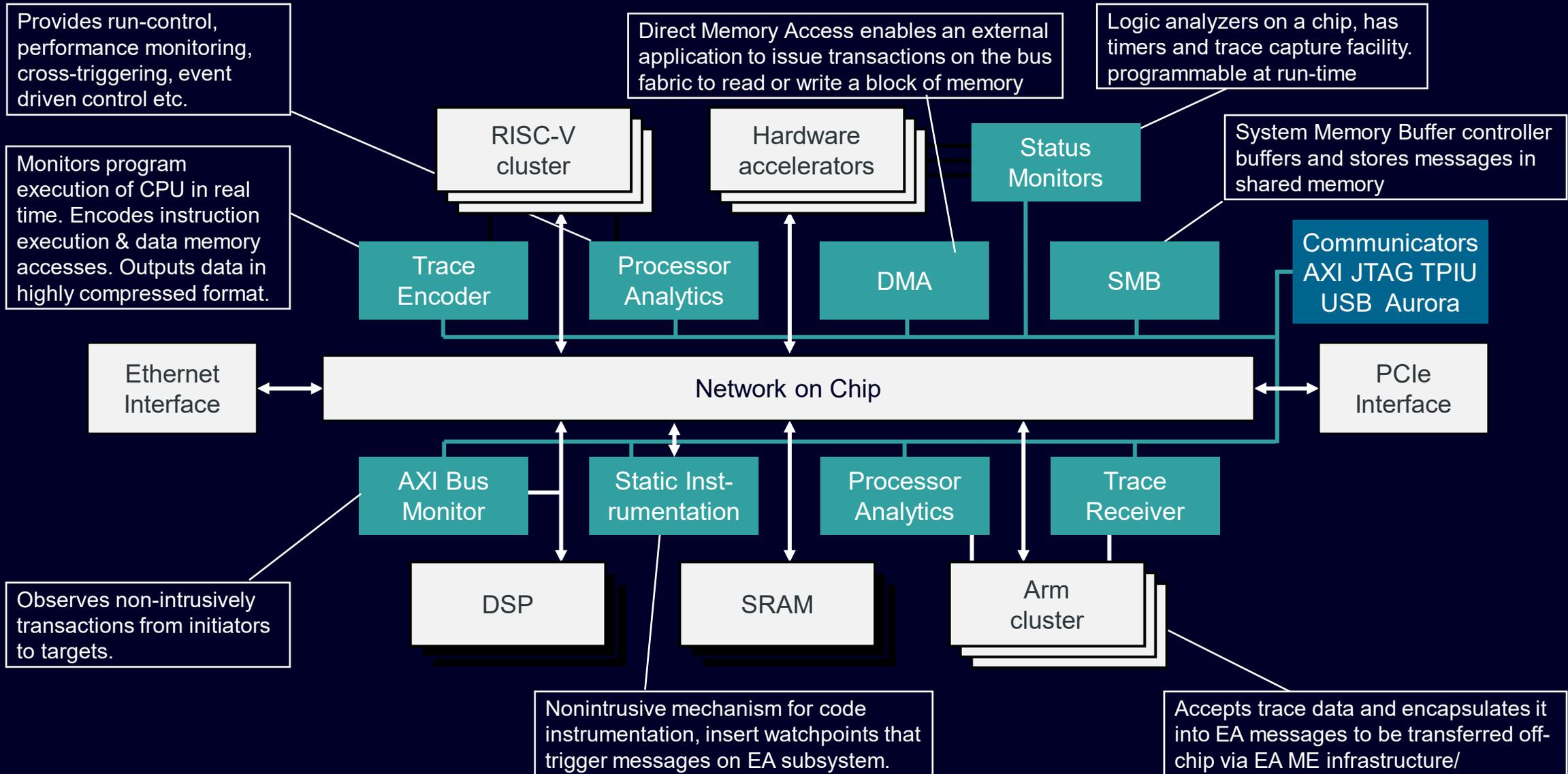
- Real-time debug and trace environment
- Optimize software to achieve better performance and efficiency
- Use historical performance data to inform designs of next generation designs

Instruments are accessible through external interfaces and/or through internal buses and embedded software

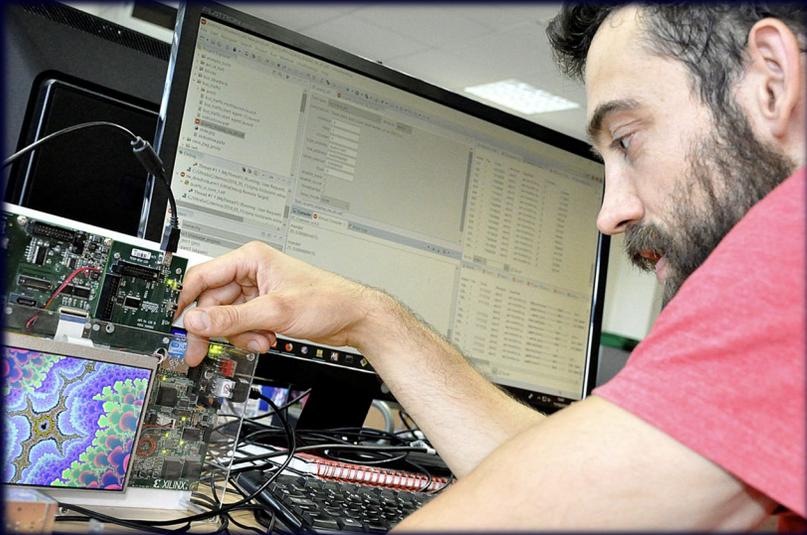
Silicon proven in millions of ICs down to 5nm



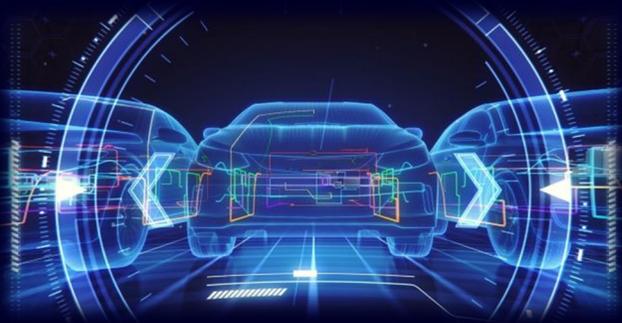
SoC instrumented with Tessent Embedded Analytics IP



Monitor the behavior of your device in the lab and in the field



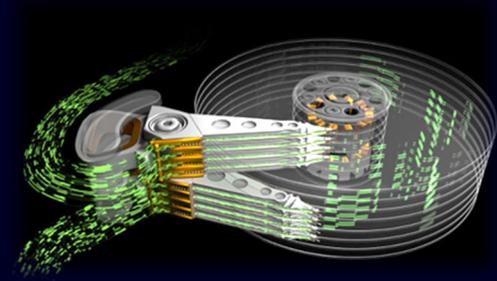
In-Lab



In-Life



Storage company improves debug timeline using Tessent Enhanced Trace Encoder

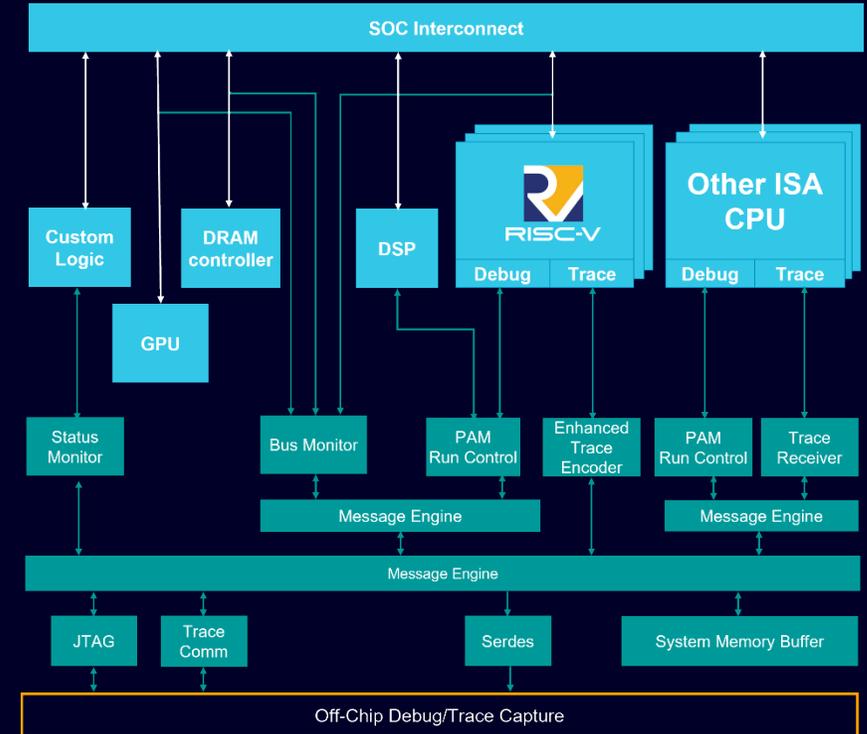


Challenges faced

- Explosive data growth, enormous opportunity for enterprises
- New area-optimized core targeting security applications
- Need for real-time debug not impacting performance

Solution with Tessent Embedded Analytics

- Trace for longer time periods
- Reduce trace memory buffer requirements
- Avoid trace loss due to backpressure
- Optimize off-chip communication bandwidth



5G company solves performance degradation caused by inefficient software

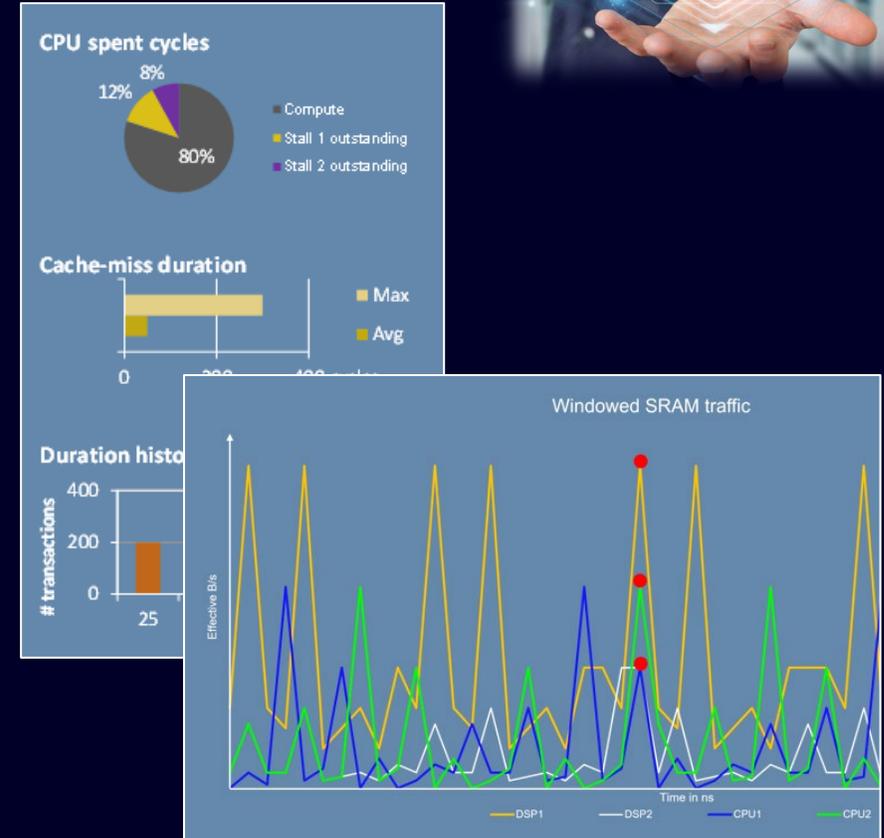


Challenges faced

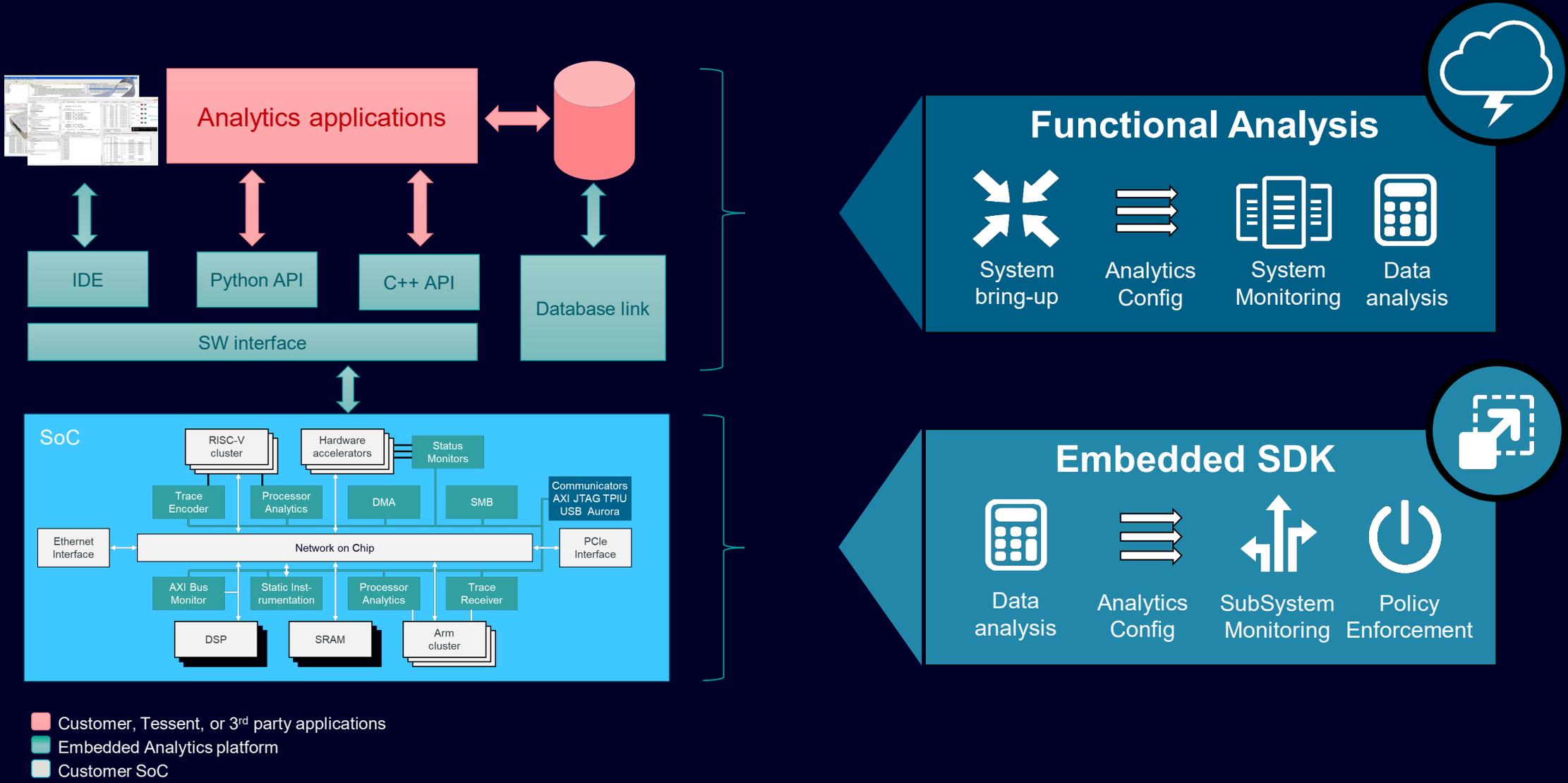
- Extreme complexity in 5G baseband processing
- More frequent software upgrades in the field
- Problems show up years after deployment
- Very difficult to debug in the lab, even worse in the field

Solution with Tessent Embedded Analytics

- Optimize code
- Determine efficiency of branch predictor
- Calculate min/max/average duration of cache traffic
- Identify cause of bandwidth degradation

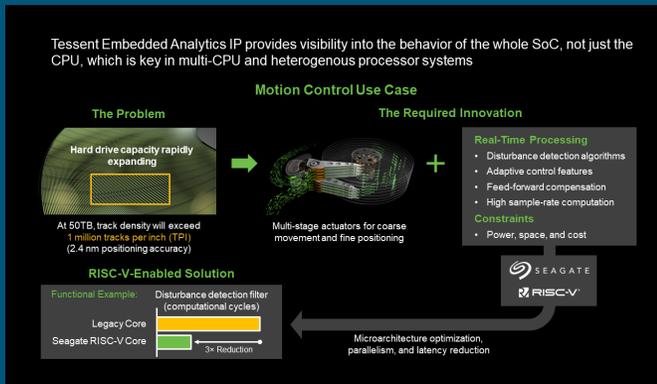


Software to facilitate on-chip or off-chip debug, monitoring and analysis



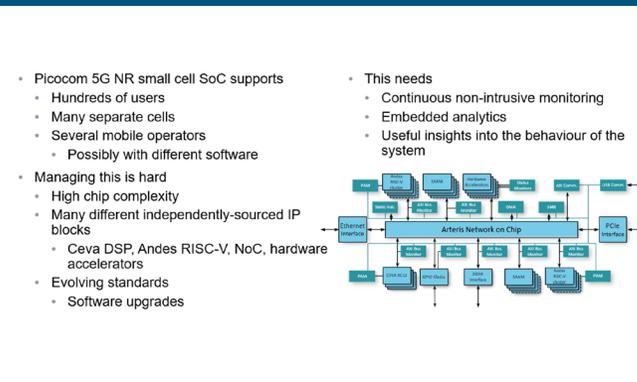
Learn more

Case study Seagate



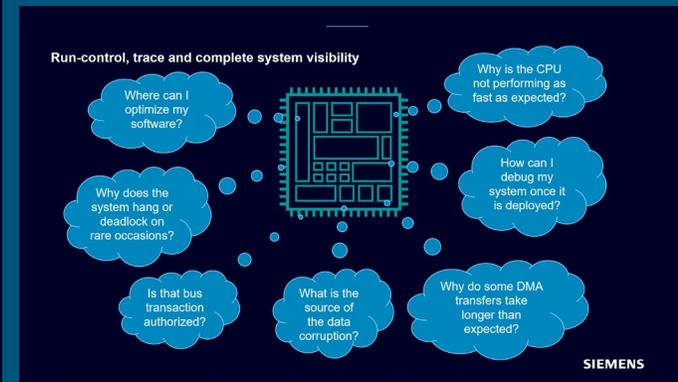
Richard Bohn, engineering director of advanced IP development at Seagate Technology, describes some of Seagate's challenges and how they use Tessent Embedded Analytics products to improve their debug and optimization

Case study Picocom



Peter Claydon, president of Picocom. Along with Gajinder Panesar of Siemens explain how Tessent Embedded Analytics provides non-intrusive monitoring and insights used to optimize Picocom's 5G small cell network SoCs

Webinar RISC-V Trace and Debug



Peter Shields, product manager at Siemens EDA gives an overview of how processor trace is used to improve embedded software and applications, what is contained in the trace specification, and the Tessent Enhanced Trace Encoder.

www.tessentea.com

Summary

Tessent Embedded Analytics helps deal with the systemic complexity of large SoCs, providing intimate visibility of the real-world behavior of entire systems

- Faster time-to-market
- Lower development cost
- Robustness against malicious intrusions
- Enhanced product safety
- Reduced system power consumption
- Better performance overall, including fine-tuning of end products even after they are deployed in the field

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