

SOSA™ AND ITS POTENTIAL TO DRIVE CHANGE IN THE EMBEDDED SYSTEMS MARKET



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Mark Littlefield – January 27, 2020

SHAN MORGAN PRESENTED YESTERDAY

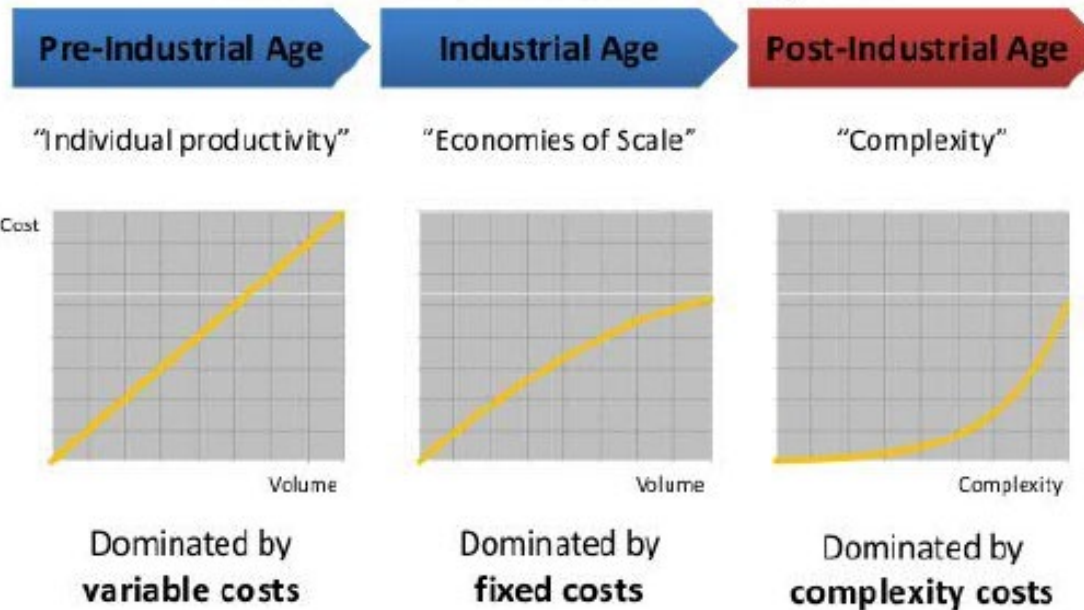


Macro Change

Complexity

ELMA
Your Solution Partner

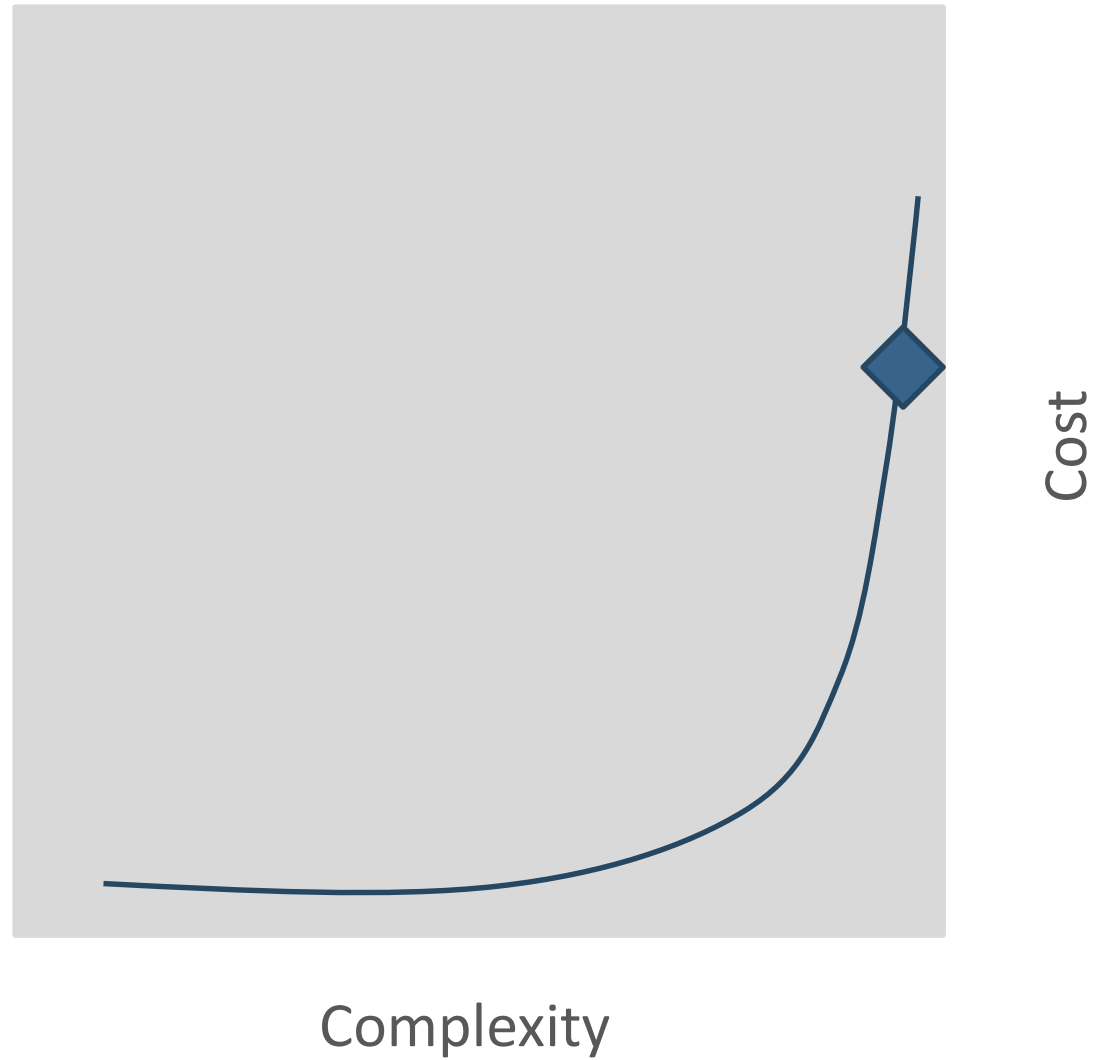
The world has changed!



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SOSA: DRIVING CHANGE IN THE VPX MARKET



SOSA is a government/industry consortium created to collaboratively develop open standards and best practices to enable, enhance and accelerate the deployment of affordable, capable, interoperable sensor systems.

- „ Permits faster system integration through use of standardized hardware and software components
- „ Allows for rapid capability transitions through easier technology insertion and accelerated DOD acquisition process
- „ Overall per-system cost containment and sustainment

ELEMENTS OF SOSA



The SOSA standard effort covers a wide range of elements affecting the development of complex systems

- „ Five primary technical and business focuses
 - „ Architecture, hardware, software, electromechanical, and business
- „ Numerous sub-groups formed to work specific aspects
 - „ System and sensor management, security, intermodule interactions and low-latency issues, and conformance
- „ Conformance with the standard is needed for certification
 - „ But can non-SOSA platforms benefit from SOSA?

YES

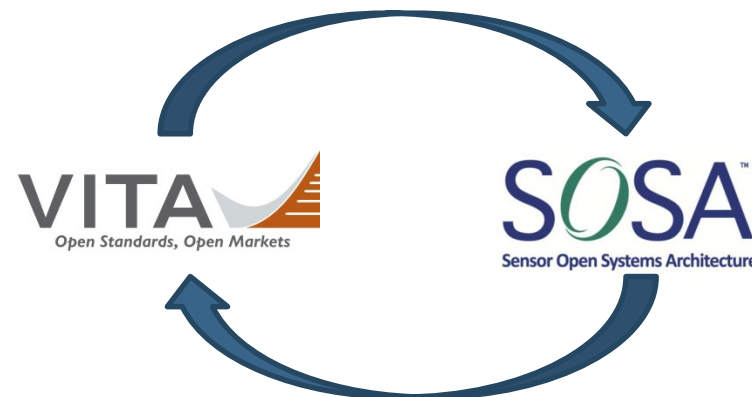


VITA STANDARDS/SOSA: WHAT'S THE DIFFERENCE?



SOSA can be thought of as adopting VITA standards but limiting their scope – while reaching beyond hardware

- „ Only a limited number of slot and module profiles will be supported
- „ Certain options that are defined in OpenVPX will be constrained within SOSA
- „ SOSA is creating new standard content that is being driven into VITA standards
 - „ New modular power supply content for VITA 62
 - „ New system management content for VITA 46.11
- „ SOSA addresses software and system architecture details well beyond what is addressed in VITA



MARKET IMPACTS OF SOSA



There are a number of ways that SOSA will impact our market

- „ Multiple vendors with common slot profiles
- „ Better definition of common VPX elements like NVMRO and serial console ports
- „ More ubiquitous, complete and interoperable System Management (i.e. VITA 46.11)
- „ Tighter definition of power usage
 - „ Easier to utilize modular power solutions
- „ Emergence of SOSA-compatible XMCs
 - „ No more disconnects between XMC and baseboard pin mappings
- „ Emergence of SOSA-compatible software frameworks and tools
 - „ Potentially off-the-shelf solutions for common system integration needs

Integrators can benefit from SOSA directly, by adopting part or all of the standard, or indirectly by merely using SOSA-aligned hardware

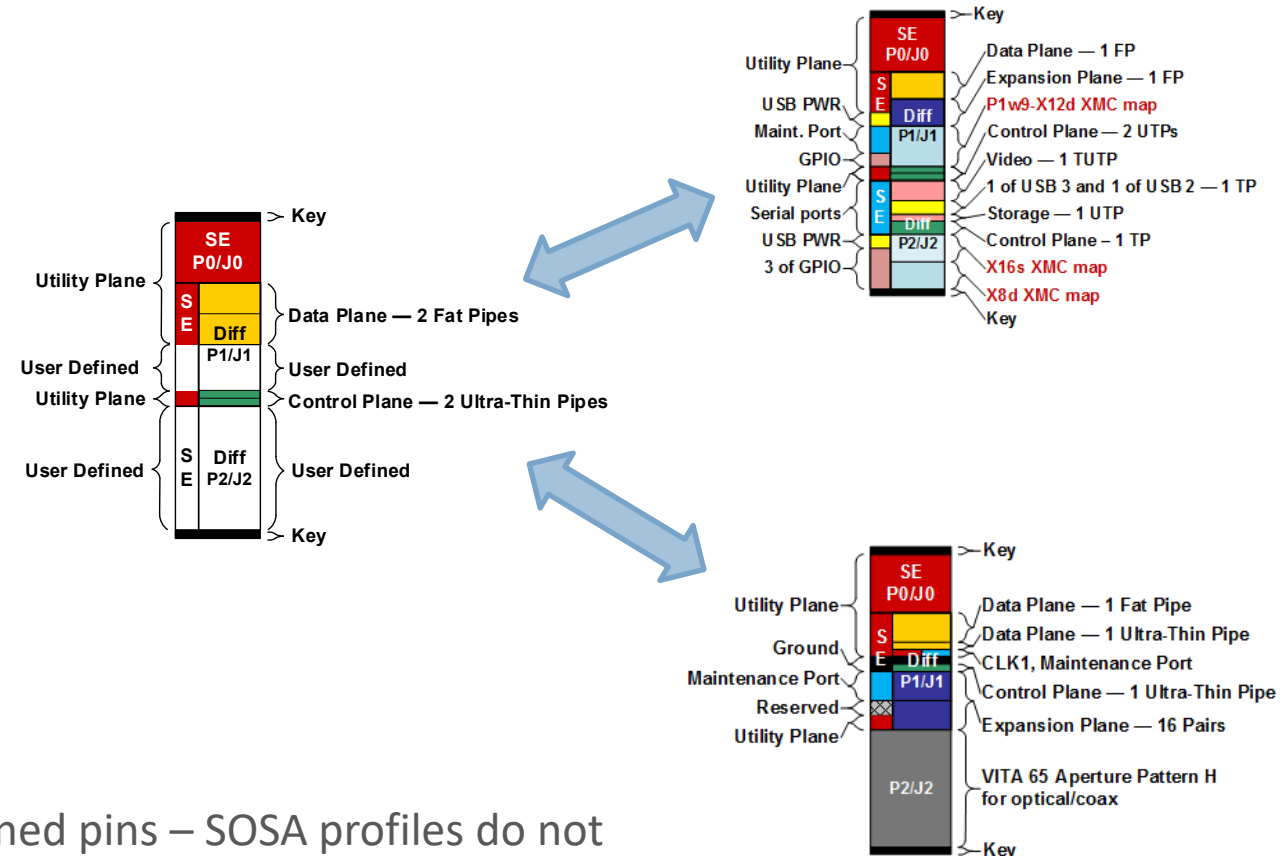
OPENVPX AND OPEN SYSTEMS ARCHITECTURE



SOSA is driving OpenVPX towards a true Open Systems Architecture

„ SOSA profiles versus OpenVPX

OpenVPX	Slot Profile Type	SOSA
37	3U Slot	3
24	3U Switch	3
2	3U Special	3
19	6U Slot	3
6	6U Switch	2
3	6U Special	1



„ In addition, nearly all OpenVPX profiles have user-defined pins – SOSA profiles do not

BENEFITS OF SOSA TO NON-SOSA APPLICATIONS



SOSA will offer both direct and indirect benefits to the entire VPX market

- „ Minimum variability in XMC mappings
 - „ 3U: P1w9-X12D+X16S+X8D
 - „ 6U: P5w1-X24S+X8D+X12D
 - „ Result: Fewer cases of XMC/baseboard incompatibility
- „ 12V Centric Power
 - „ No more having to balance 12V vs 5V main power
 - „ Less likely to require a custom power supply
- „ SOSA Maintenance Ports
 - „ Serial Console ports at fixed locations on the backplane connectors (and separate from operational ports)
 - „ RS-232 signal levels permit direct COM port connections
 - „ LVCMOS levels permit easy port aggregation via FPGAs
- „ More refined behaviors and usage for common signals such as AUX_CLK, REF_CLK, and NVMRO
- „ Fewer pitch options

BENEFITS OF SOSA TO NON-SOSA APPLICATIONS



SOSA will offer both direct and indirect benefits to the entire VPX market

- „ Certified solutions and software packages like security services and system management
 - „ Security packages to provide services such as authentication, authorization, and logging
 - „ System management providing functionality beyond what VITA 46.11 offers today
 - „ Health logging
 - „ BIT management
 - „ More integrated management of both the platform and the application

- „ Certified frameworks and middleware
 - „ FACE OSS and TSS

SOSA TODAY



SOSA is not a sometime-in-the future thing – it is today



OUR CHANGING WORLD IS FILLED WITH
BOUNDLESS OPPORTUNITIES

