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Distributed & Wireless Software Infrastructure

OMG RTE Middleware versus 'Traditional' Solutions. Are we Winning?

Steve Jennis, SVP Corporate Development

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Arlington, VA July 13, 2005

Introduction to PrismTech

- **Established, growing, profitable c. $10m business**
- **Telecom, Defense & Financial "Fortune 500" customer base**
- **Four product lines**
    - **OpenFusion Object Middleware**
    - **Spectra SDR Tools and Infrastructure**
    - **Splice Data Middleware**
    - **Xtradyne Security**
- **c. 70 staff; 50+ engineers**

West Coast
USA HQ
South Central
European HQ
Germany
France

- **Aiming for leadership position in the emerging high-growth market for tools and wireless infrastructure software for Software Defined Radio (SDR) applications, a segment of the overall SDR market which is set to grow from $700M in 2002 to over $30 Billion in 2008.** *Source: Pioneer Consulting.*

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World-Class Customer Base

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Use of Standards-based RTE Middleware

- ▸ Middleware used in tiny percentage of RTE projects

- ▸ 'Standards-based' middleware used in tinier percentage

- ▸ OMG Standards-based middleware used in even tinier percentage

- ▸ Opportunity beckons…

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Over Five Years of Significant Progress

Standards for RTE Middleware

▸ Here today

- ▸ minimumCORBA
- ▸ DDS
- ▸ Lightweight COS
- ▸ RTSJ
- ▸ J2ME
- ▸ ETF
- ▸ SCA

▸ Coming soon

- ▸ CORBA/e profiles (minimumCORBA update to start)
- ▸ SBC PIM/PSM (SCA standardization)

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COTS GA Implementations

▸ Here today

  ▸ minimumCORBA on GPP: PrismTech, OIS, ….
  ▸ minimumCORBA on DSP: PrismTech, ….
  ▸ DDS: PrismTech/TNN, RTI, ….
  ▸ Lightweight COS: PrismTech, ….
  ▸ RT Java ORB: PrismTech, OIS, ….
  ▸ J2ME JacORB: PrismTech,….
  ▸ ETF: PrismTech, JacORB….
  ▸ SDR-optimized ORB: PrismTech

▸ Coming soon

  ▸ CORBA/e profile implementations: 'microORBs'
  ▸ GIOP-enabled FPGA: PrismTech, ….
  ▸ SCA OE (future PSM-compliance): PrismTech

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![PrismTech — Distributed & Wireless Software Infrastructure]

But Much to be Done..

Our Customers' Business Drivers

▸ Advanced features

▸ Cost reduction

▸ Faster-to-market

▸ Higher quality

How does Standards-based RTE middleware address these issues?

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The 'Killer' Application?

Software component portability…

…disconnects the software and hardware lifecycles, enables business benefits…

▸ Advanced features

- ▸ *Adaptation, enhancement, addition, <u>convergence</u>*

▸ Cost reduction

- ▸ *Lower development costs, reuse of IP, mass customization, <u>hardware flexibility</u>*

▸ Faster-to-market

- ▸ *<u>Reuse</u>, outsourcing, reconfiguration, hardware flexibility*

▸ Higher quality

- ▸ *Reuse, <u>standardized platforms</u>*

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The ISV Business Model

▸ Deliver technologies to enable component portability

- ▸ Component APIs
- ▸ Software development tools
- ▸ <u>Standards-based software platforms</u>
- ▸ Software components

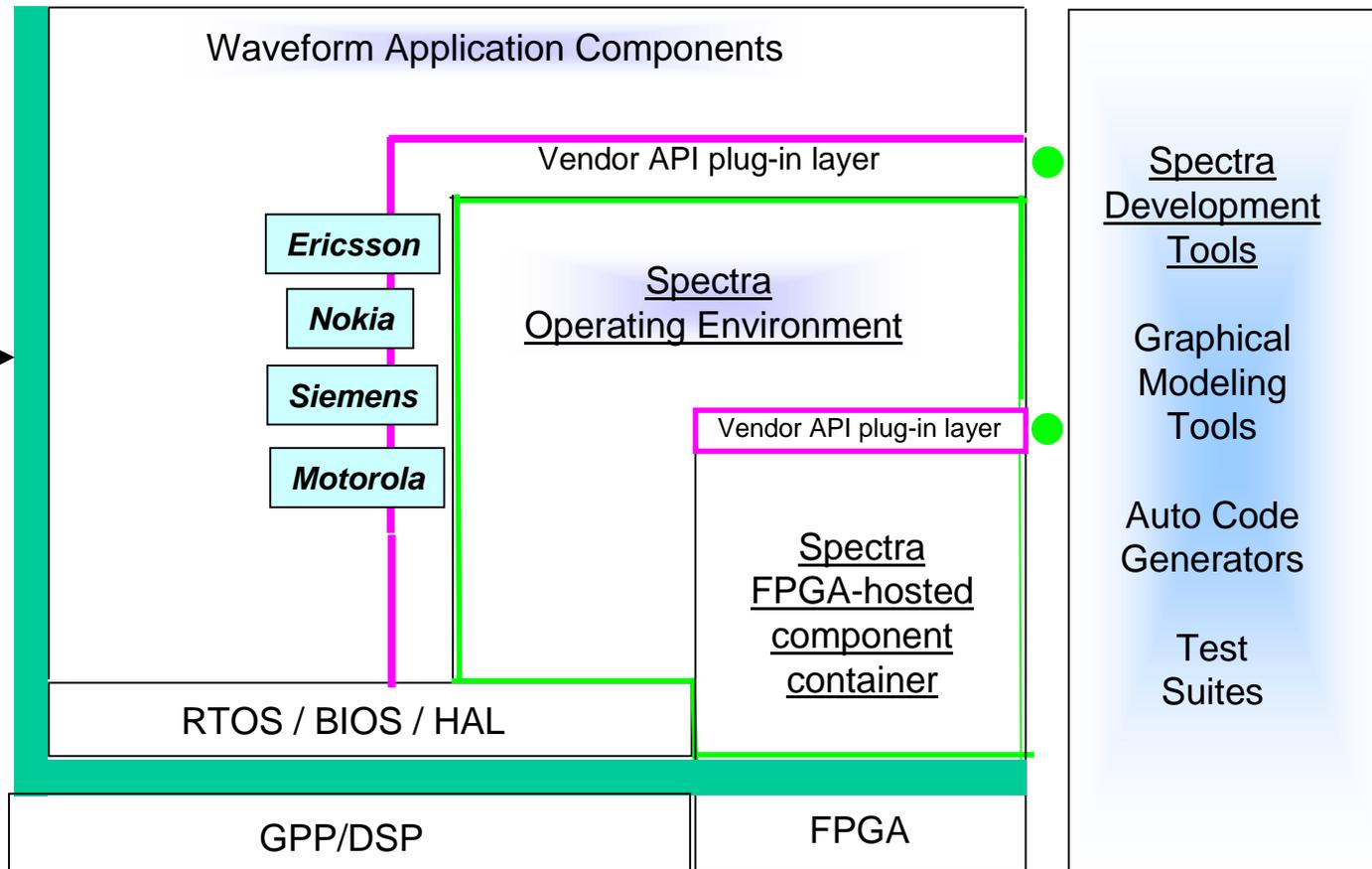▸ But not at the expense of

- ▸ Performance, Size, Weight, Power

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The Technologies

The Perceived Technology Gap?

- Application APIs
    - *Component reuse*
    - *Hardware abstraction*
    - *Debug*
- <u>Middleware</u>
    - <u>*Extremely low overhead*</u>
    - <u>*Hardware abstraction*</u>
- <u>Standard architectures</u>
    - *XML component and h/w description*
- Application development tools
    - *Graphical modeling*
    - *Automatic infrastructure code generation*

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Architecture Vision

Waveform Application Components

Vendor API plug-in layer

Ericsson

Nokia

Siemens

Motorola

Spectra
Operating Environment

Vendor API plug-in layer

Spectra
FPGA-hosted
component
container

Low
latency
ubiquitous
GIOP bus

RTOS / BIOS / HAL

GPP/DSP

FPGA

Spectra
Development
Tools

Graphical
Modeling
Tools

Auto Code
Generators

Test
Suites

PrismTech Phase-1

PrismTech Phase-2

● Support layer
for ADI, TI,
Xilinx, Agere

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The Credibility Gap?

A Culture of DIY?

▸ I don't need middleware because

  ▸ No distribution
  ▸ No reuse
  ▸ Lose control
  ▸ Performance critical
    ▸ *Throughput critical*
    ▸ *Overhead (power) critical*
    ▸ *Footprint (power and area) critical*

▸ Does this sound like enterprise systems in early 90s?

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Valid Concerns

▸ Distributed embedded applications are relatively new

▸ Reuse is not so critical in short-lived, high-volume consumer products

▸ In-house development culture

▸ CORBA is not optimized for resources

  ▸ ORB implementations are perceived as 10x to 100x too 'fat' (>2Mb historically)

  ▸ Can't afford GPP overhead

    ▸ *Use ASICs, FPGA, etc.*

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OMG Community Challenges

- ▸ Position CORBA as relevant to consumer products, get considered (marketing)
- ▸ Address 'buy not build' concerns (marketing)
- ▸ Complete CORBA/e (process)
  - ▸ minimumCORBA is anything but…..
  - ▸ Produce specs for ultra-low resources
- ▸ Vendors have to optimize implementations (validation)
- ▸ Prove CORBA supports battery powered computing devices (demos)

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The Prize

▶ Consumer Electronics Market

▶ Wireless everything…

▶ Enterprise CORBA revenues peaked in 2000...

> ...when will RTE CORBA peak?

▶ We're just getting started….

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Thank You……

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