

Components

Spreker: Chris Laffra AMS/OTI Chris_Laffra@oti.com

Lab Director, Object Technology International, Amstelveen

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Abstract components.ppt In this talk I will discuss various component systems. I will start with a brief ontology to deal with the burdening topics of "what is a component", "component interfaces", "deployment models", and "communication models". Yearly returning workshop at conferences such as ECOOP has been solely devoted to these fundamental questions, and the overall conclusion is: there is no "one solution that fits all needs". Instead, solutions are much more tailored to the specific needs of the problem they try to solve. A component system for industrial automation may worry about safety critical issues, such as not being able to use more than 8 bit processors running at 1Mhz clock cycles having a total memory budget of 256K bytes (including the communication software and OS). Clearly, not a friendly environment for component systems like CORBA that cater to replicated servers running back-office mission-critical data in multi-language, heterogenous enterprise network environments. Other component systems focus on network-based delivery of dynamically installable services, where servers and individual devices engage in a negotiation to discuss the current configuration of the device, and selectively download the missing components to the loosely couple network of embedded devices. The various solutions address different facets in the wide spectrum of software engineering techniques. The emphasis on varying features (inter-component communication, life-cycle management, plug-and-play, minimal overhead, and others) drive the design of such component systems, and therefore the tools that support them. In the short time available in this talk, I will discuss a few representative component systems and show where they are similar, but more importantly where they differ.

About Chris Laffra Chris graduated as an average doctorandus from the Vrije Universiteit in 1988. The late Professor Jan van den Bos apparently saw something in him, and invited Chris to do a PhD-study with him. Under his guidance, Chris graduated in 1992 on the design and implementation of Procol, an object-oriented language based on C that added classes with delegation, parallelism, method resolution based on protocols and constraints. In other words, our own interpretation of a Swiss army knife of computer languages. After persuading IBM Netherlands to sponsor him, he joined IBM T.J. Watson Research Center to continue to work on language design, user interface development, and program visualization. In 1994 IBM almost went broke and Chris moved to Morgan Stanley to work on Wall Street on (again) user interfaces. With his colleagues he became one of the earliest adopters of CORBA-based products of IONA. Companies like Morgan Stanley are some of the largest consumers of state-of-the-art computational power, and receive first class attention from vendors like Sun. Therefore, Chris happened to be in a meeting with people like Guy Steele who came to visit Wall Street to preach these stock brokers that C++ was dead,

and this unknown (at that time crappy) little language called Java was to crush it, and if we were willing to completely throw away our invested millions in C++ based infrastructures. Well, that didn't happen overnight, but Chris had definitely caught the Java virus. He read up as much on the topic as he could, and in spare evenings and weekends, he wrote a book that complained about pitfalls in the language. After his first son was born, and IBM managed to not go broke, he rejoined IBM Watson in 1997 to work on tools to transform Java class files. The most important result that came out of this work was Jax, a Java application extractor (basically a compression tool to shrink the size of a standard Java application). After son number 2 was born, he and his wife Carla (who graduated as a more than average doctoranda in Math at the VU), wanted to move back to the Netherlands and got in touch with OTI. One thing led to the other, and in September of 1999, the Amsterdam lab of OTI was opened with 1 employee. Currently the lab has 7 full-time software developers that contribute to the IBM VisualAge Micro Edition product. In addition to (1) being responsible for packaging technology of the product, the lab also (2) manages the PalmOS port of VAME (and represents IBM as an expert group member in Java Specification Request JSR-00075, to define class libraries for PDAs), and (3) is involved in an IST 4th Framework project with ABB, Univ. of Bern, and FZI Karlsruhe, to develop a light-weight component system for field devices. In addition to running the OTI lab, fruitlessly trying to keep his email inbox empty, learning Dutch sign language, and spending time with his family, he sometimes finds time to isolate himself from the world to do some extreme programming and hack cool software. More information: eliens@cs.vu.nl

<http://www.cs.vu.nl/~oo>