

Internetworking and Portability

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Net-centric interworking – SOAP

- Initially a replacement for Web-scraping
- Programmatic interface to "web based" services
- Interaction via XML messages/RPC over HTTP
 - Another SGML derivative
- Service discovery mechanisms emerging (UDDI)
- Interface type encoded in XML "schemas" (DTDs)
 - Schema type-system weak
 - Agreement on schemas difficult to get – the EDI problem?

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CORBA vs. RMI/Jini

- Language/platform independence via protocol compatibility, with bridges to other middlewares (RMI/IIOP, CORBA/COM etc.)
- Interface information carried in IDL
- Data only interactions
- Rich set of services defined (infrastructure and domain-specific)
- Evolving "standard" leads implementation
 - Multiple implementations with different cost/performance/functionality

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CORBA vs. RMI/Jini

- Java only
- RMI provides object interaction, Jini layers discovery, transactions, persistence, etc.
- Object (rather than data) interaction and transmission
- Purpose is unclear – local-area devices or wide-area services?
- Scalability problems both to wide area and to limited devices (PDAs, next-generation cellphones)

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VM-based Portability – JVM

- Bytecode interpreter with dynamic class loading
- Most come with (sophisticated) JIT compilers/optimisers
- Security via run-time checking and restrictions
- Other source languages possible but unhelpful
- Extensive platform-neutral API set
- Extension via the "Community Process"
- Multiple (compatible) implementations

VM-based Portability – .NET

- A Microsoft initiative, shrouded in marketing.
- Includes the Common Language Runtime (CLR), another bytecode specification, but compiled-to-native at load time
- Multiple languages available, but all in CLR flavours (e.g. the new VB)
- Native APIs available directly
- Security via source-authentication, but complete access to native APIs thereafter
- Distribution via DNA (by MTS out of DCOM)