The Rise and Fall of CORBA

Discussion questions:

1. In the early 1990s Before CORBA was invented, if different machines wanted to talk to each other (especially if different hardware, operating systems, and programming languages were involved), what did programmers do?

   Answer: Programmers either used sockets and wrote an entire protocol stack themselves or their programs didn't talk at all.

2. During CORBA's growth phase in the mid- and late 1990s, which were the major changes that affected the computing landscape.

   Answer: Advent of Java and the Web.

3. What was Microsoft attitude towards CORBA? Did Microsoft succeed? Why?

   Answer: Microsoft never embraced CORBA and instead chose to push its own DCOM (Distributed Component Object Model). But DCOM could not win the middleware battle either, because it worked only on Windows. Microsoft eventually dropped DCOM after several failed attempts to make it scale.

4. Identify the technical challenges CORBA faced.

   Answer:

   Complexity:

   Complexity of its APIs.
   C++ language mapping: many pitfalls
   Poorly designed interfaces
   Architectural choices
   Type system
   Emulation are difficult to implement

   Insufficient Features:

   Security: CORBA's unencrypted traffic; requiring a port to be opened in the corporate firewall for each service

   Versioning: difficult to have gradual upgrades of the software in a backward-compatible way. This forces all parts of a deployed application to be replaced at once, which is typically infeasible.

   Other technical issues: at the beginning of page 56

5. Identify the political (procedural) challenges CORBA faced.

Answer: In essence, members vote to issue an RFP (request for proposals) for a specification, member companies submit draft specifications in response, and the members vote on which draft to accept as a standard. In theory, this democratic process is fair and equitable but, in practice, it does not work:

- There are no entry qualifications to participate in the standardization process. A large number of members barely understand the technology they are voting on.

- RFPs often call for a technology that is unproven. Users usually know little about the internals of a CORBA implementation.

- Vendors respond to RFPs even when they have known technical flaws. This may seem surprising. Vendors compete with each other for customers.

- Vendors have a conflict of interest when it comes to standardization. Vendors want to keep control over features that distinguish their products from the competition.

- RFPs are often answered by several draft specifications. Instead of choosing one of the competing specifications, a common response of OMG members is to ask the submitters to merge their features into a single specification.

- The OMG does not require a reference implementation for a specification to be adopted.

6. The author indicated the successor of CORBA in this article. What was it?

Answer: web service

7. What kinds of applications were used mostly by CORBA today?
   Answer: Today, CORBA is used mostly to wire together components that run inside companies' networks, where communication is protected from the outside world by a firewall. It is also used for real-time and embedded systems development, a sector in which CORBA is actually growing.

8. Which of the lessons can we learn from CORBA?

Answer:

Standards consortia need strict rules to ensure they standardize existing best practice.

No standard should be approved without a reference implementation. (A reference implementation is the standard from which all other implementations and corresponding customizations are derived. It means the implementation of the specification that should demonstrate the concepts.)

No standard should be approved without having been used to implement a few projects of realistic complexity.

Open source innovation usually is subject to a Darwinian selection process.

To create quality software, the ability to say "no" is usually far more important than the ability to say "yes."