The OPC Foundation and the Solaia Patent

The Solaia patent applies to OPC as much as a gumbo recipe applies to OPC.

The Solaia patent (5,038,318) patents a direct connection between a general purpose spreadsheet add-in and a register in a PLC network card in the PC. It specifically excludes using device drivers, capabilities of the operating system, or a client/server connection. OPC, of course, uses device drivers, the operating system, and clients and servers, but no spreadsheets. Furthermore, the patent only covers communications between a computer and one or more PLCs. OPC is a communication method between computers. These are so different that only the US Patent Office, patent attorneys, and judges can reconcile them; engineers can't.

A little history

In 1987 a patent application was filed by Brooks Roseman of Square D Company. After navigating the patent examination process with several amendments, the patent was issued for a "Device for communicating real time data between a programmable logic controller and a program operating in a central controller." (You can read the patent for yourself at the US Patent Office website. Use "Patent Number Search.") Some of those amendments were in response to the patent examiner noting the similarity between the patent application and DDE (from an article in the *Microsoft System Journal* of November 1987: "Interprogram Communication Using Windows' Dynamic Data Exchange" by Kevin P. Welch). The applicant responded with this argument:

> Applicant's invention differs over Welch in that it is connectionless. That is, the link is direct and always present. There is no message exchange between the applications before the transfer of information occurs. The transfer of data is direct between addressable registers in the PC and addressable registers in the PLC. Operation is directly from the spreadsheet program in the PC to the application in the PLC to effect information transfer. There are no intermediate transfers through the PC's operating system or special device driver programs. The DDE steps of initiate, acknowledge connect, transfer, and disconnect are not required. The client server model does not exist. [response filed 9/7/90, page 12, lines 10-20]

The patent was issued as 5,038,318 ('318, for short) to Square D in 1991, the same year that Square D was acquired by Schneider.

Schneider was a member of the OPC Foundation and participated in the generation of the OPC Specification (now called the OPC Data Access Specification). They did not disclose their allegation that the '318 patent applied to OPC during the specification's development process.

Fast forward to January 10, 2001. Schneider issues a press release advising that they will be auctioning the '318 patent. It says:

> These patents reserve rights to a technology that controls the interface between spreadsheets and factory automation equipment. The technology covers DDE and OPC Servers...

The good news is that they noticed it was applicable to spreadsheets (as opposed to databases or HMIs). The bad news is they said it applied to DDE (and Microsoft's evolutionary step to OLE; OLE was the O in OPC), when it quite explicitly does not!

The players

Solaia owns at least some rights to the '318 patent. Schneider also owns at least some rights to the '318 patent! The exact division of rights has not been publicly stated. Schneider is well known in the automation industry with brand names like Modicon and Square D. But who is Solaia?

Solaia is a new class of company that makes no product, nor provides any service. It owns some rights to the '318 patent, including the right to sue for infringement. Apparently, this is the only patent they own. They have not stated how much of the proceeds from their licensing and legal actions is shared with Schneider.

Solaia is the plaintiff. Who are the defendants? Large users of factory automation. Not large providers of factory automation equipment. Users, large users, are more likely to settle out of court than the factory automation providers who have a vested interest in seeing the matter settled once and for all.

In summary, apparently Solaia exists solely to generate profit from "licensing fees" or legal settlements. Therefore, some would put them in the category referred to in this law.com article: Battling the Patent Trolls.

How does the OPC Foundation fit in? We were sucked into this quagmire because Schneider mentioned OPC in their auction press release. It makes no sense to us, because OPC specifications use very different methods than the '318 patent specifies.

A large user told us they would not use OPC for fear of being sued. Our imaginations can't stretch far enough to see how OPC could be covered by the '318 patent. Sadly, Solaia is doing a good job of stretching. And if Solaia stretches this patent to cover OPC, it will cover any other known way to connect to a PLC as well. Avoiding OPC does not avoid the problem!

The result

In an economy that is already suffering, the chilling effect of Solaia's lawsuits on the noble goal of standardization should concern all of us. Standardization provides economic benefits to providers and to users of this technology.

Don't let the trolls win – use OPC technology! We urge members to continue their efforts to provide OPC-based products. We urge users to not be bullied into settlements. We are convinced that the '318 patent is irrelevant to OPC.

This document represents the viewpoint of the OPC Foundation. It's just our opinion.

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