

CO-OPERATIVE SUPPORT

NEXT GENERATION DEVICE HEALTHCARE

Synopsis

Some important support issues can only be addressed in the context of their effect on multiple devices. Device HealthCare uses the revolutionary Cooperative Support technique to do this.

Precedent

Starting with the widespread availability and use of networks in the 1980s, support issues grew to include those that were related to problems involving networks. These tend to be the most difficult issues to address for a number of reasons:

- they involve multiple devices,
- they may be caused by the interaction between multiple components,
- it is often difficult to gather information about the problem from multiple sources in a timely fashion, and
- Fixing them may involve making changes on multiple devices, sometimes with time constraints.
- The traditional method for diagnosing these kinds of issues is to use event correlation (see this Wikipedia article). Event correlation can be a powerful tool, but it has some significant limitations:
- it doesn't really help with issue resolution that requires deployment of changes on multiple devices with time constraints,
- the data collection uses a resource (the network) that may be involved in the issue, so the problem itself may interfere with the process, and
- the process tends to be specialized and complicated, so it is often expensive and somewhat difficult to implement.
- Because of the relative expense, event correlation systems typically focus on high-profile issues like security break-ins and outages in high-availability networks. This is unfortunate, because many simple but pervasive support issues can be addressed much more easily using information from multiple devices. Some examples are:
- checking whether a device has the latest anti-virus updates (by checking the latest update date on any device)
- determining whether an email failure is due to a configuration issue or a failure of the external service (by checking whether the same failure happens on other devices)
- checking whether a printing issue is due to the device or the printer (by checking whether the same failure happens on other devices)
- determining whether a device is set to the correct time zone (by comparing its time zone to neighboring devices at the site)

Device HealthCare takes the whole process to the next level by using direct communication between the local support engines. We call this Cooperative Support. As described in Distributed Support, DARTs (Diagnosis, Analysis, and Resolution Tools) are the implementation of solutions for support issues. With Cooperative Support, DARTs have a convenient facility for accessing the engine on other devices to help diagnose and resolve issues.

Detail

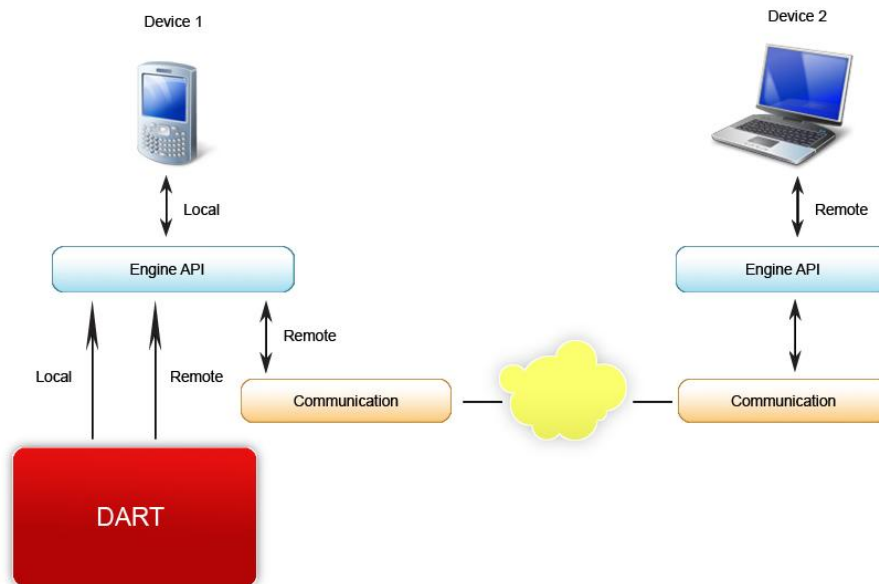
DARTs use a well-defined programming interface to the engine in order to implement all the actions they take. This isolates the DARTs from the details of the operating system interface.

Every interface to the engine specifies the device on which the interface should run. Normally, this is set up to run on the same device as the DART itself, but it is just as easy for the DART to run the engine interface on another device. This can even be on the server.

DARTs also have a variety of means for determining which devices are in their local network. When the engine starts up on a device, it determines which other devices are locally accessible and available, and maintains a cached version of this list.

Using this mechanism, it is quite simple for a DART designer to access information from other devices and uses this to make decisions and take actions that would otherwise be much more difficult without this additional access. This is the true power of Cooperative Support.

Co-operative Support



Benefit

Cooperative Support is more than just an incremental improvement. It represents a truly new way of doing things. As such, the benefits will play out more and more as time goes by, but even today the power of Cooperative Support brings immediate value to all support organizations.

- **Beyond monitoring:** Monitoring can tell you that something is wrong from the outside looking in, but Cooperative Support gives you key indicators and issue resolution from the inside looking out.
 1. You can see what is happening on the network from multiple vantage points. This paints a clearer picture of what is really going on and the true source of issues.
 2. You can see how issues with shared resources are affecting multiple devices, easily diagnosing otherwise difficult situations.
- **Reducing false positives:** The vantage point of multiple devices can easily differentiate between a major failure affecting an entire site and a configuration change affecting one device. This sort of information helps prioritize and focus effort and resources where it is needed.

Uniqueness

As described above, event correlation is related to Cooperative Support. But it is very different in many ways. It relies on up-to-date reporting to a central resource, where the analysis must take place. Cooperative Support distributes the process, moving the diagnosis and decision-making process onto the device where the issues are actually happening and all of the relevant information is available.

No other offering has anything even faintly resembling Cooperative Support. The concept has been designed into the architecture of Device HealthCare from the beginning, and will therefore not easily be duplicated by adding extensions to some other existing system.