

Customer Services

Femtosecond is a small Veteran-owned company on GSA Schedule 70 Special Item Number 132-51. We offer IT consulting, analysis, IT project management, R&D, IT security, and strategic planning using the rates on GSA Advantage. Hourly rates for subject matter expert levels 1 & 2 are available on GSA schedule. We can conduct studies, assess risk, recommend IT security controls, perform on-site project management and work on new technology modernization.

About the CEO

Dr. Russell Davis has the degrees Doctor of Science, Applied Scientist, and Master of Science degrees in Computer Science conferred from the George Washington University. In addition to a PMP, he also earned his Bachelor of Science in Computer Engineering from Florida Tech. He has over 25 years experience working Information Technology Security. Dr. Davis was the Logical Access project manager at the Bureau of Land Management. Over a four month period, the number of cardholders with digital certificates issued went from approximate 200 to over 5500. He represented the Federal Deposit Insurance Corporation on the Federal PKI Steering Committee. Dr. Davis was issued a US District Court subpoena to testify as a computer and network virus expert witness (Hilgraeve Corporation V. McAfee Associates, Inc.). Separately, he holds patent (7,191,707 B1).

Member of the Fairfax County
Chamber of Commerce



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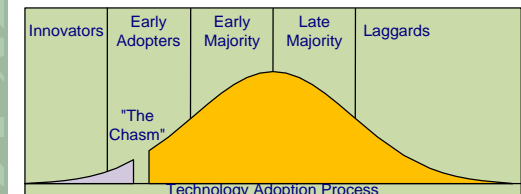
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Femtosecond®

Innovation
Project Management
Research & Development
IT Security Consulting

Product/
Service
Information



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IT Project Management Innovation

Femtosecond is an IT consulting firm that offers project management, IT security, analysis, R&D, and strategic planning. Our mission is to save customers time and money by early detection of problems while supporting Exhibit 300 consistent project management. We analyze the total system solution including all interdependencies.

Subject Matter Experts

Most IT projects fail for a number of reasons; the lack of subject matter expertise (SME) is a major one. Our company operates on the foundation that the chance for success increases when proper SMEs analyze the technology solution for problems. For complex IT projects, a quality approach is needed to ensure that constraints do not result in unachievable results. In addition to the cost, schedule, and quality constraints; customer requirements, software reliability (vendor and developed), networking, and processing availability analyzed at the system-level. Quickly identifying imbalanced scope is critical to project success.

Consider an application that relies on other distributed processing capabilities. Network and distributed computing constraints could impair project success. Moreover, changes to these other resources, often outside the application's control, interfere with production operation. The SME that can quickly assess the distributed resource can reduce risk.

We propose using a recursive data feed analysis for pinpointing timing and deadlock conditions. Each data source inputs are sequentially assessed for dependencies. Once the full assessment of data dependencies is determined, the feasibility of success can be determined.

Defects

Defects have the undesired effect of increasing cost and delaying implementation. If defects are not prevented or detected early enough, each can have a schedule impact. The schedule then includes the sum of non-overlapping delays.

$$S = S_b + \sum_{i=0}^n SD_j$$

S = Schedule in units of time
 S_b = Base schedule without defects
 n = number of defects
 SD_j = The schedule impact (additional time) for defect j

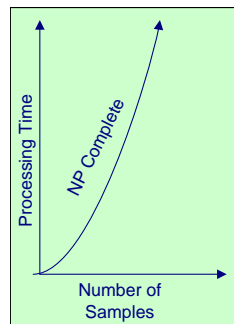
$$C = C_b + \sum_{i=0}^n CD_i$$

C = Cost
 n = number of defects (problems)
 C_b = Base cost without defects
 CD_i = The Cost per defect i

Similarly, the cost is the sum of all non-overlapping costs. As the number of defects increases cost grows placing the project at risk. SD_0 and CD_0 are separate sums of cost ensuing from defect consequences for instance new requirements.

Complex Problems

Consider there are a set of problems referred to as non-deterministic polynomial (NP) complete.



On the exterior, they seem to be very straightforward to calculate yet they are exponential in space or computation time. An example of an exponential problem might require 2^n computations to process. So a lab might test a 20 sample problem and not discover any problem. A computer capable of one billion calculations per second could produce the wanted result in less than a second. Nonetheless,

less, doubling this number from 20 to 40 (2^{40}) requires over 18 minutes of processing time to compute one result. Once deployed, the system could quickly degrade below expectations.

A straightforward customer requirement could be added that does not appear to be a problem yet results in an NP Complete quandary putting the application at risk due to the far-reaching processing required. The problem is made worse when the project management team is unable to identify the processing failing. Have you ever experienced an application that works nearly all of the time but on occasion it just seems to hang?

Deadlocks

Deadlock is the situation when two or more resources have requested a service (or information) from the other and cannot complete **the other's request until their request has completed**. Each resource waits for the other indefinitely. This is similar to traffic gridlock where cars block the intersection so no car can move during light changes. A good subject matter expert can flush out these sorts of problems early in the project life cycle and can help identify problems resulting from alterations made by distributed resources.



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