Applied Dynamics Announces Intent to Open Source Key Real-Time Code as the rtxd Project

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Applied Dynamics (ADI) today announced intentions to open source release key real-time server code and interfaces as the rtxd project. With the explosion of interest in Industrial Internet of Things (IIoT) applications, ADI sees a quickly growing, cross-industry need for reliable, real-time server code and interfaces. Instead of waiting for an industry standard to emerge, ADI is taking a leadership role and sharing for free its approach and lessons learned from over 20 years of developing state-of-the-art real-time servers for some of the world's most demanding applications.

ADI's Real-Time Computing Expertise

For more than two decades, ADI has designed and implemented ultra-high-performance, time-deterministic, real-time data handling and computation facilities used to certify systems for safety, performance, airworthiness and seaworthiness, across the global aerospace and defense industry. In 2009, ADI predicted an emerging industrial demand for time-deterministic computation and data handling. This prompted the ADI team to define a distributed, real-time computational architecture to match the superset of capability requirements identified for this wider range of applications and larger user base. This requirements definition led to a clean-sheet redesign of the real-time server-side code, the set of capabilities running in real-time on workstations, servers, and industrial computers. In May 2017, ADI released the rewritten real-time code base, the real-time executive or "rtx" code. The rewritten and optimized rtx code has been deployed, first in beta and now fully released, to some of the industry's most advanced real-time facilities. It is this rtx code that will be used as the basis for the rtxd project.

The rtxd Project

The rtxd project is a set of Linux server-side code providing out of the box functionality for time-deterministic, real-time data handling and computation applications. The rtxd server simplifies the routine tasks of integrating, controlling, monitoring and verifying real-time control and data handling applications, allowing a user to focus on developing application algorithms without worrying about many of the common challenges that demanding real-time applications face. By leveraging ADI's lessons learned and best practices from decades of real-time asset development, deployment and verification, users will be able to greatly reduce development and debugging time while acquiring the data to assure reliable real-time performance for critical applications.

ADI's ADvantage Framework Tools

The rtxd project will be 100% compatible with ADI's industry leading ADvantage Framework Tools, but since one of the main goals of the rtxd project is to increase adoption and accelerate innovation, ADI's tools will not be required. All of the rtxd project functionality will be available through the project's open interfaces and will be fully accessible over

standard network communications; however, ADI intends to make the ADvantage Framework tools as accessible as possible, with potentially discounted and/or trial licensing available for limited, educational and not-for-profit purposes.

Why Open Source?

The rtxd project is being launched for similar reasons to any impactful open source project:

- Accelerate product innovation by collaborating with a global community
- Reduce obsolescence risk by sharing the expertise and ownership of the technology with the community
- Increase adoption of the technology by reducing barriers to entry
- Maximize technology reuse by lowering the individual cost/effort of implementation
- Share the future development and support burden by leveraging community resources
- Wider adoption of quality real-time server code can improve the overall safety and reliability of critical applications for everyone

Additionally:

- ADI strongly believe there is a far wider demand for this category of computationally optimized capability, and if they do not open source a code base with this functionality then someone else would
- ADI will benefit from a larger adoption of the rtxd approach as some percentage of users will benefit from purchasing ADI's engineering services support and/or licensing ADI's ADvantage Framework Tools

Open Source License

In order to encourage adoption of the rtxd project, a very permissive open source license will be selected that will allow project resources to be used without royalty or limitation, whether for commercial application or otherwise, with no obligation to publish or provide changes back to the community.

About Applied Dynamics

Applied Dynamics helps companies make better use of modeling assets through all stages of product development, verification testing, demonstration, training, and maintenance. Applied Dynamics flagship product, the ADvantage Framework, is a real-time, industrial Internet of Things (IoT) model based systems engineering software platform providing an agile, feature-rich environment for supporting the product development lifecycle through development, integration, verification, and certification. ADvantage embraces an open architecture and allows its users to leverage best-in-class COTS components and open source technologies. The ADvantage user base includes more than 50% of the Fortune 500 A&D companies and extends into marine, power systems, oil & gas, and the automotive industry.

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