Atrenne®
A Celestica Company

COTS Enabled Rapid Development to Deployment

DESIGN > DEVELOP > DEPLOY

50 Years
1972-2022

COTS Enabled Rapid Development to Deployment

In Military, Aerospace and First Responder applications, System Integrators targeting highly rugged applications often utilize conduction cooled modules because of their superior performance in harsh environments. Historically, these have often been proprietary custom designs, but with tighter budgets System Integrators are increasingly turning to COTS suppliers in order to minimize non-recurring costs and shorten time to market. At the same time, their customers are seeking the same thing, resulting in a need for System Integrators to utilize IRAD funding to develop subsystems that are ready to demonstrate.

While the deployable product often needs to be highly ruggedized (e.g. ATR form factor), this has not been practical for development and demonstration phases due to the fluidity of the design and the lead time of a customized rugged chassis.

Traditional Air Cooled Development Approach

System Integrators often perform early development activities using COTS commercial grade air cooled modules and COTS air cooled development chassis.

While this approach has low up-front cost and short lead times, it also has several disadvantages:

1. The air cooled development chassis is not able to be re-used for deployment.
2. The commercial grade air cooled payload is typically not able to be re-used for deployment.
3. The commercial grade air cooled development system does not resemble the final rugged form factor, so use for demonstration is not optimum.
4. The air cooled development system is not rugged, so demonstrations are less impactful (e.g. may not be able to demonstrate on the target platform).
5. The end result is that all of this hardware is not usable for deployment, so another new set of rugged hardware is needed.

AIR-COOLED DEVELOPMENT CHASSIS

Conduction Cooled Development Approach

Rather than performing early development activities using commercial grade air cooled modules and air cooled development chassis, customers can now perform early development activities using COTS conduction cooled modules and COTS commercial grade conduction cooled development chassis.

While this approach has relatively low up-front cost short lead times, and allows re-use of rugged conduction cooled modules for deployment, it also has several disadvantages:

1. The commercial grade conduction cooled development chassis is not able to be re-used for deployment.

2. The conduction cooled development system does not resemble the final rugged form factor, so use for demonstration is not optimum.

3. The conduction cooled development system is not rugged, so demonstrations are less impactful (e.g. may not be able to demonstrate on the target platform).

4. The end result is that the chassis is not usable for deployment, so another new rugged chassis is needed.

CONDUCTION-COOLED DEVELOPMENT CHASSIS

6U & 3U OpenVPX

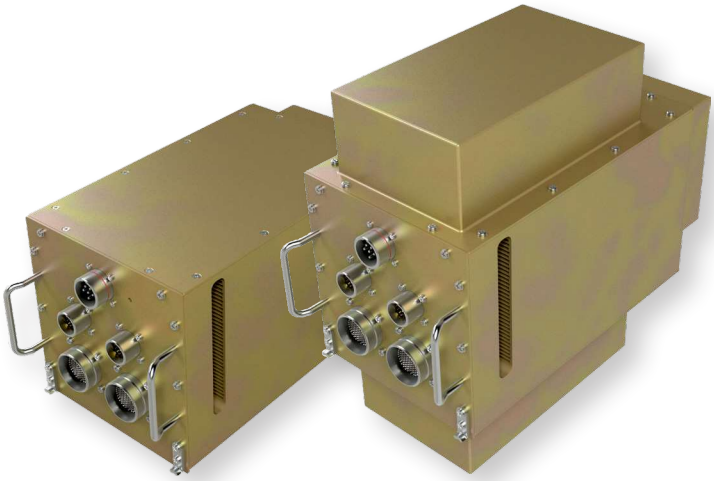
The D2D concept enables System Integrators to perform more impactful demonstrations quickly, while reducing overall development cost.

It also allows rapid transition from demonstration to deployment once the design is locked down.

D2D Approach

After listening to our customers, Atrenne came up with the D2D (Development-To-Deployment) approach allowing reduced risk, reduced schedule, and reduced cost for our customers.

This approach allows the D2D ATR product to use the same platform to support customers through their program lifecycle.



D2D CHASSIS

The customer can upgrade to a demonstration version with the addition of an internal MIL power supply and separate power backplane cabled to standard backplane.

The rugged deployed version enables the customer to:

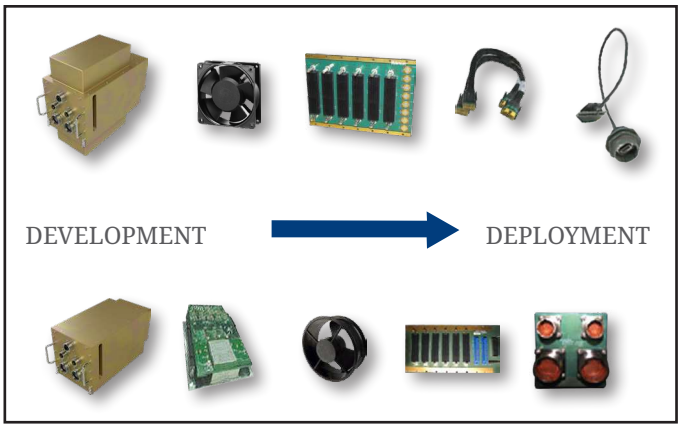
- Replace a standard backplane and I/O cables with a custom backplane and I/O panel
- Remove the "bottom hat"
- Upgrade to internal MIL grade power supply that plugs into the backplane
- Upgrade to MIL grade fans

This D2D approach is a powerful tool for System Integrators to more easily and quickly get to Demonstration Phase with a product that is inherently rugged.

DEVELOP >>> DEMONSTRATE >>> DEPLOY

This approach reduces costs and lead time for the development version (lab only) by:

- Standard backplane using I/O cabling
- Chassis "bottom hat" and I/O cabling
- Connections for external power supply
- Industrial grade fan



About Atrenne

Atrenne, a Celestica company, is a vertically-integrated, component and system provider serving aerospace, defense, computing, communications, and other technology-driven industries. Atrenne delivers integrated components, electronic packaging, fabricated metal, electronic assemblies and value-add build-to-print manufacturing services to industrial markets across the globe. With more than 40 years of experience, Atrenne provides innovatively engineered products and services throughout the program lifecycle, from concept to manufacturing to obsolescence management. Atrenne is proud to provide customers with fully-tested, reliable, electromechanical solutions on-time and with world-class quality.

Conclusion

The D2D concept enables System Integrators to perform more impactful demonstrations quickly, while reducing overall development cost.

It also allows rapid transition from demonstration to deployment once the design is locked down.

Contact Information

www.atrenne.com
sales@atrenne.com
508.588.6110 or 800.926.8722

Atrenne
A Celestica Company

General Inquires: +1 800 926 8722

Atrenne Computing Solutions, US: +1 508 588 6110

sales@atrenne-cs.com | atrenne.com

Atrenne | @AtrenneOfficial

Atrenne WP COTS-D2D-Enabled-071525.indd