

At a Glance

What is it?

■ Command and Control Rapid Prototype Continuum (C2RPC) couples emerging science and technology developments, advanced prototypes and experimentation processes to explore maritime operations center operational level of war needs at several fleet commands. It also serves as an incubator for technology concepts that will produce capabilities to be transitioned by Program Executive Office (PEO) C4I and related C2 programs of record.

How does it work?

■ This program employs net-centric precepts as espoused by the Department of Defense's Chief Information Officer, in design, development and implementation of common enterprise computing hardware and software infrastructure to align Navy data and information needs with joint and other service components capabilities through service-oriented architectures, data strategies and shared planning validated through experimentation.

What will it accomplish?

■ C2RPC will allow for the evaluation of advanced technology capabilities in operational environments; speed transition and fielding with better responsiveness to current and emerging Fleet requirements.

Point of Contact

Gary Toth
gary.toth@navy.mil

The Office of Naval Research C2RPC program is supporting the development of net-centric capabilities to make the fleet more adaptive and agile to changing mission needs, adversary tactics and threats. C2RPC is establishing baseline technologies that will demonstrate the feasibility of dynamic command and control systems.

This program explores whether a distributed enterprise based on service-oriented architecture, shared plans/tasks data model and distributed data services can be implemented to provide effective support to C2 operations. Such an enterprise must permit C2 planners and decision-makers across operational levels of war and lower echelons to conduct and maintain operations during disconnected, interrupted and limited (DIL) communications conditions while supporting centralized direction and de-centralized execution.

To date, C2RPC has successfully deployed a prototype capability to the Commander of the U.S. Pacific Fleet, the Commander of the U.S. Naval Forces in Europe and the Commander of U.S. Naval Forces in Central Command, for participation in a variety of C2 activities based on developments in the following areas:

- Open track manager – Provides enhanced track management performance, functionality and connectivity to a variety of legacy and future common operating picture (COP) and combat information systems compatible with service-oriented architecture and net-centric operations
- NETOPS COP – Issues including real-time status reports on the networks
- Inter-related COP – Allows the C2RPC capabilities to communicate through the shared plan representation and user-facing services (Halo COP) of the C2RPC architecture.
- Readiness COP – Monitors and extracts real-time health and status of Blue force units, aggregated Blue force units, and associated capabilities in support of operational level planning, tasking and assessment, and makes them available to the user via the IR COP
- Plan manager/task navigator – A set of viewers and editors that links planning and execution information to the Halo COP so that planners can access frequently asked questions information from the Halo COP and enter important information which links various data sources into a common representation onto other data views.
- A suite of tools developed to support and coordinate planning, tasking, course of action analyses and execution monitoring

Research challenges and Opportunities:

- Development and validation of service-oriented infrastructure as an enabler of net-centric capabilities including adaptability and composability
- Expansion of data sharing strategy concepts to achieve enhanced data exchange and more robust information sharing
- Conceptual development and implementation of an application integration framework that will provide a set of enterprise configuration/set-up services

