

# The NCN/A3R (“NA3”) Native Application Development Framework

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# The NCN (Native Cloud/Native) Protocol

## Cloud/Native Components as back-ends for native software

- “Native Cloud/Native” refers to native application front-ends paired with Cloud/Native container instances.
- Share code libraries and data representation across both endpoints.
- Common representation on both server- and client-side streamlines network communications (no need to marshal data between different formats).

## How Cloud Back-Ends Enhance Native Front Ends

- Cloud Backup; Share data between users; Collaborative Editing;
- Persist users' application state across different computers (home/school/office, etc.);
- Upgrade running applications without re-compile.

# Application-As-A-Resource (A3R)

## The A3R Application Model

- A3R Applications
- A3R Applications

## A3R Developer Tools

- Hypergraph-based data modeling and serialization.
- Framework for building custom scripting, parsing, and data persistence engines.
- Enhanced support for applications specifically designed to access research data sets.

# The Qt Ecosystem

Qt is the most popular native, cross-platform application-development framework.

~1 million developers ♦ Over 5,000 client companies ♦  
Worldwide “Qt Partners” Ecosystem ♦ ~US \$250 million overall market

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