



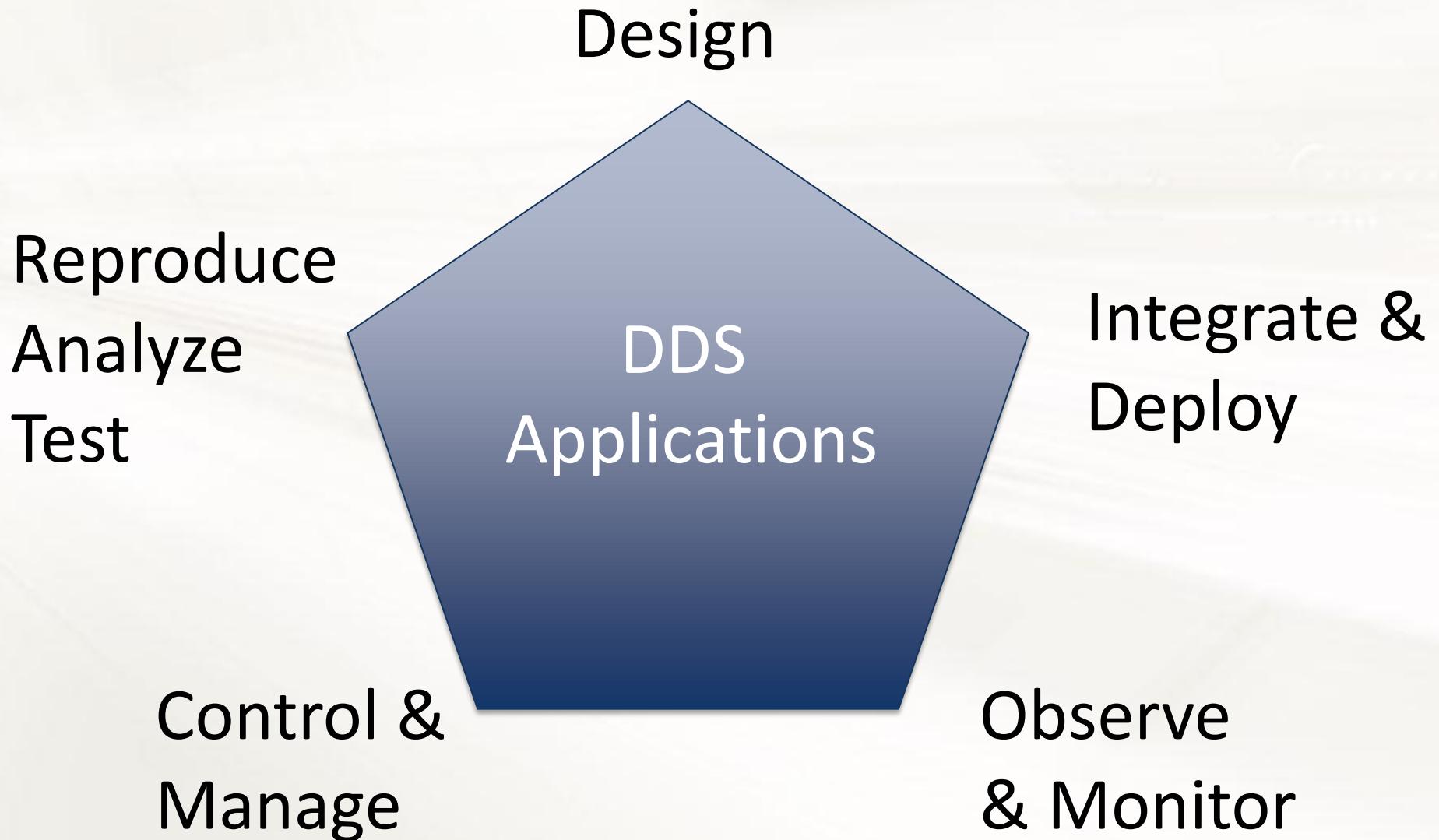
Your systems. Working as one.

# RTI Connexx Tools: The Essential DDS Workbench

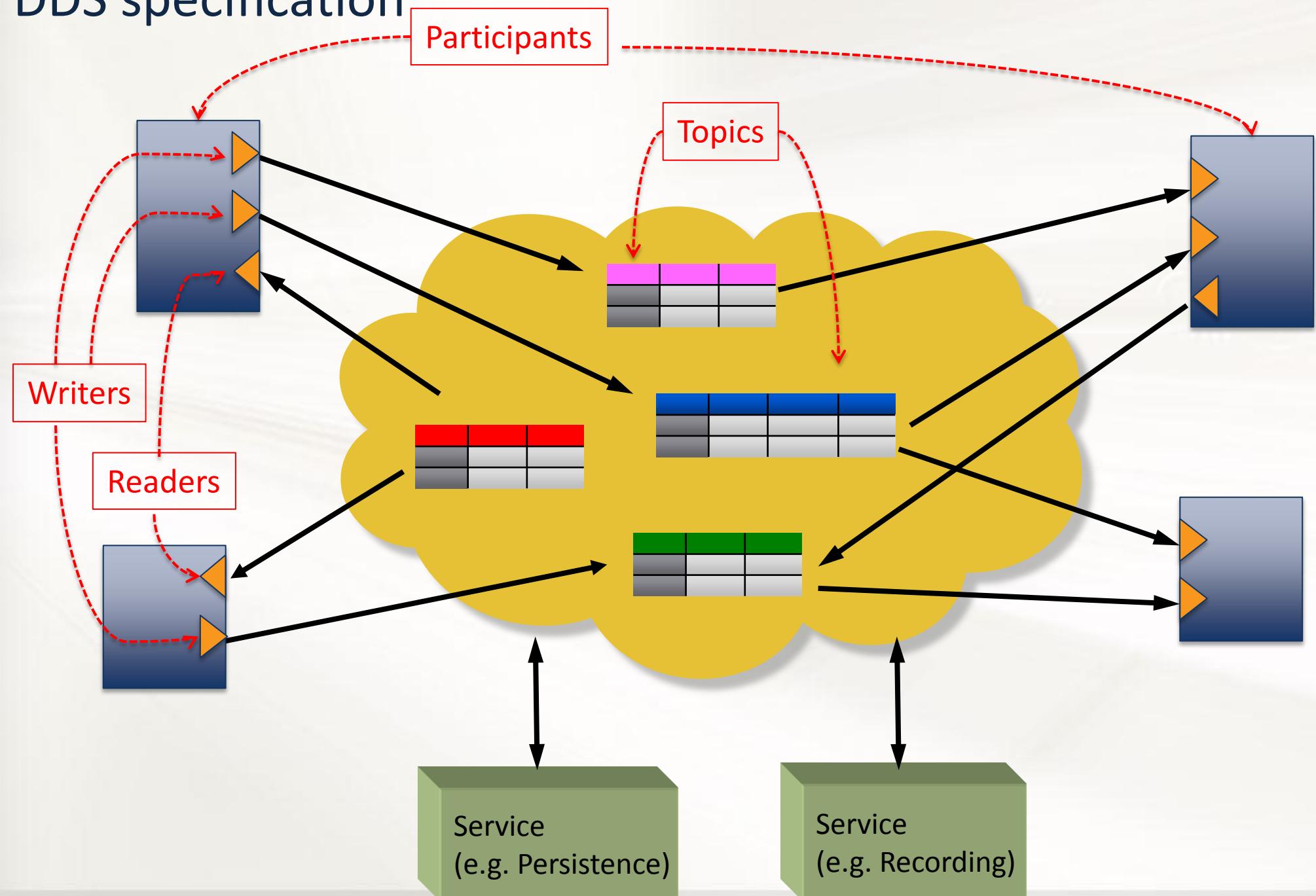


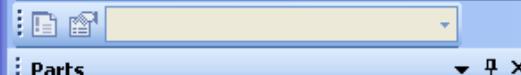
Sumant Tambe, Ph.D.  
Real-Time Innovations, Inc.  
DDS Information Day, Reston, VA  
March 20, 2013

# Software and system development stages

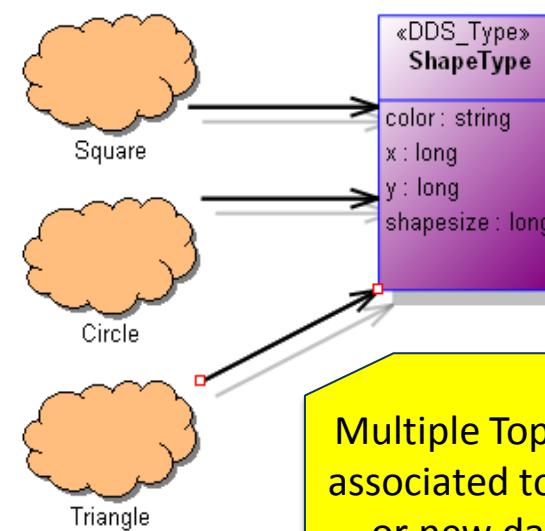


# Design: UML Tools implementing UML Profile for DDS specification

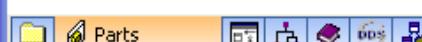




## DDS Topic Diagram1 x DDS Type Diagram1 x



Multiple Topics can be associated to the same or new data types



## Properties of 'MyDDSPackage'

General Text Options Changes Style Items Access Permissions PackageDDS

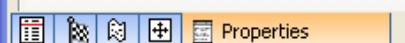


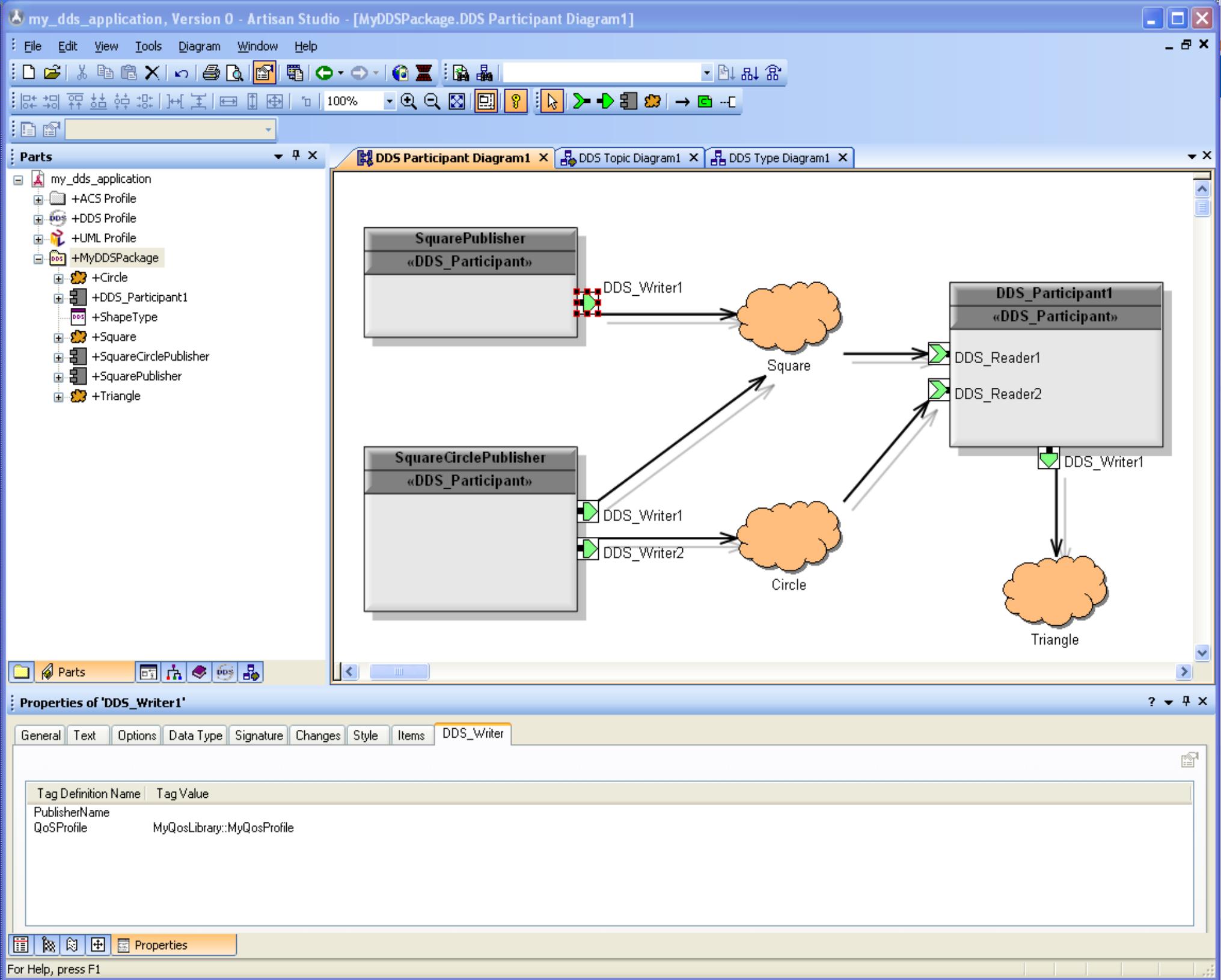
MyDDSPackage

Full name: MyDDSPackage

Type: PackageDDS

Last changed on/by: 5/7/2012 8:08:37 AM ANNAPURNA-XP-MA\Gerardo

Visibility:  Public  Protected  Private  Package

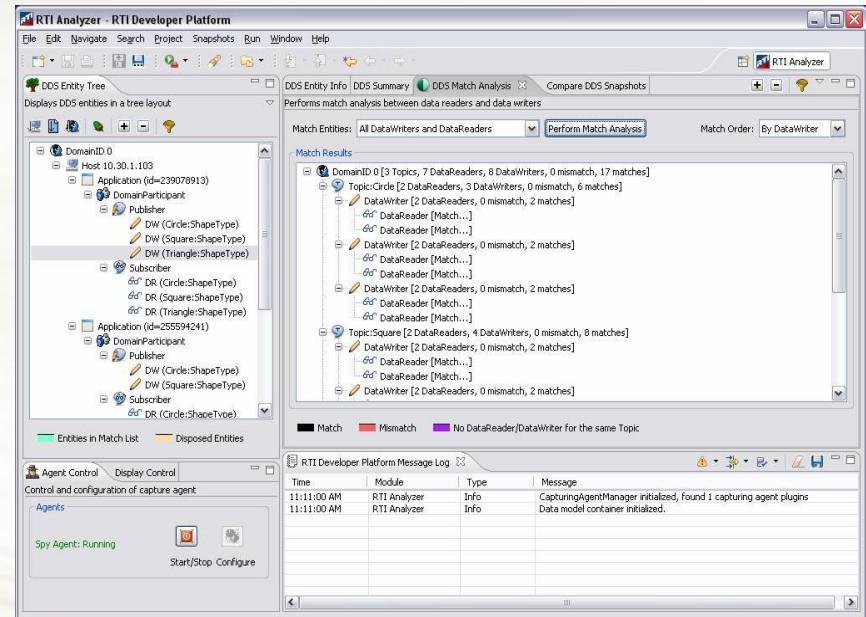
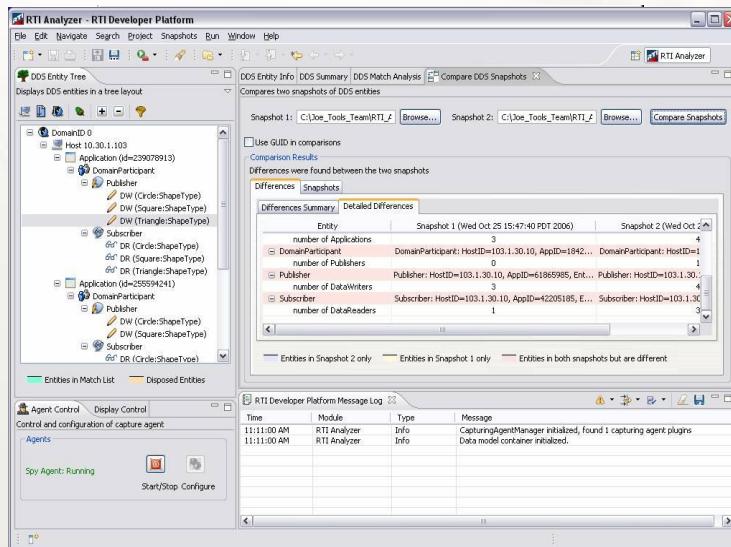


# Integrate & Deploy: RTI Analyzer



**View to all of the objects from a single workstation**

- Find out who's talking to whom
- Display object parameters
- Try out different properties without changing code
- Find out what's wrong



**Provides different perspectives**

- Node view to debug application
- Topic view to debug system

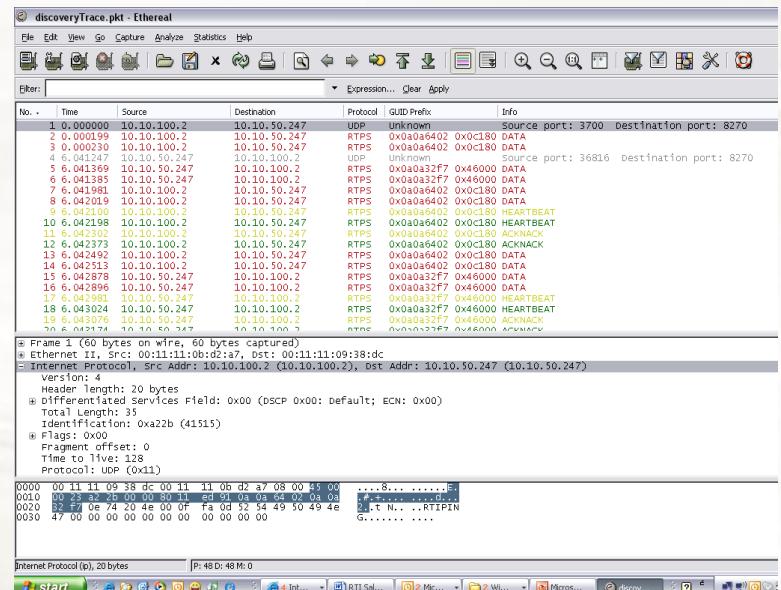
*Make sense of your distributed system*

# Integrate & Deploy: RTI Protocol Analyzer



## Network packet & traffic analyzer

- Traps RTPS packets
- Shows packet contents
- Counts packet types, produces graphs and charts
- Also filters other popular protocols

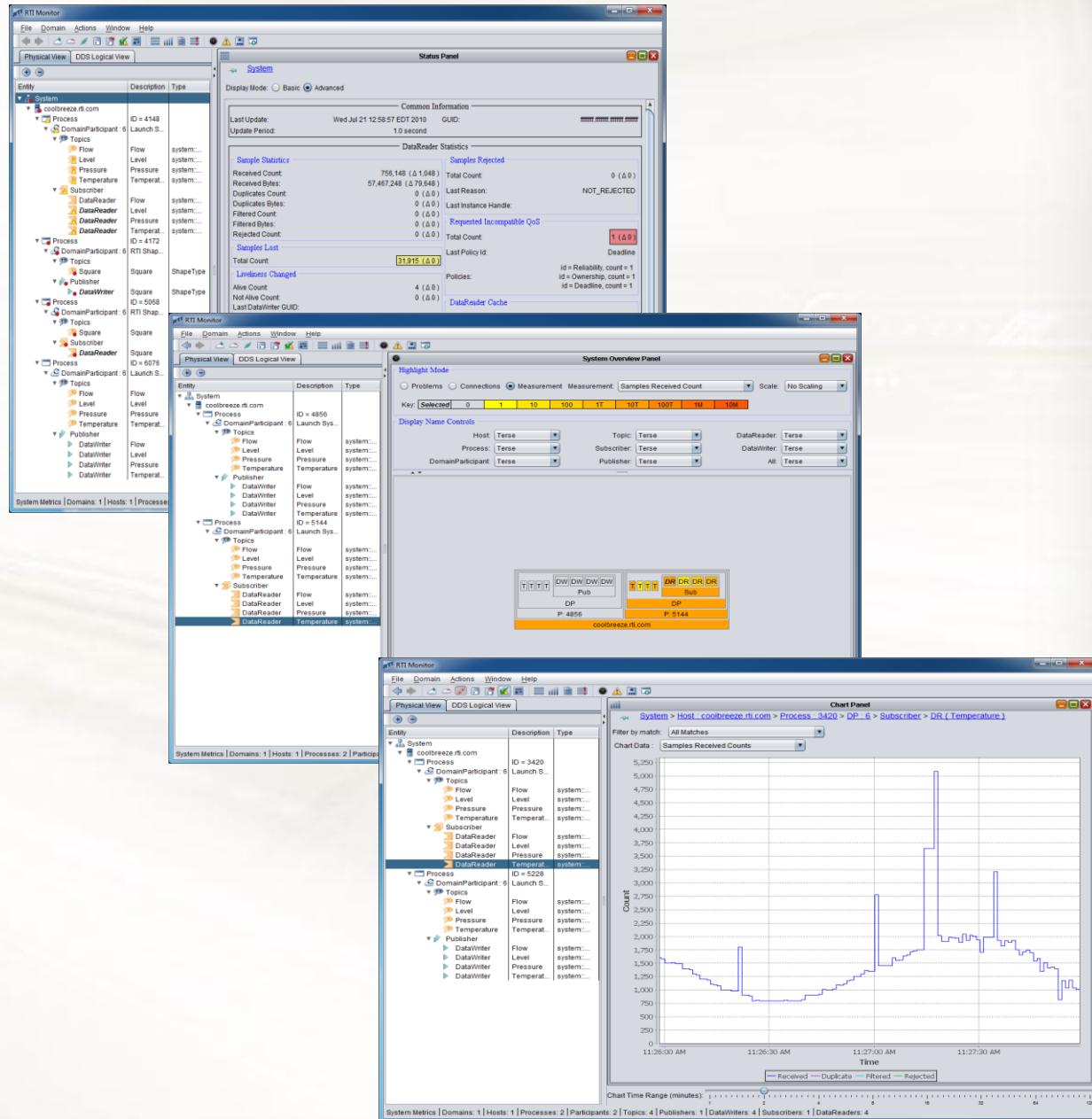


*Used to analyze wire traffic and adjust parameters for optimal performance*

# Observe & Monitor: RTI Monitor

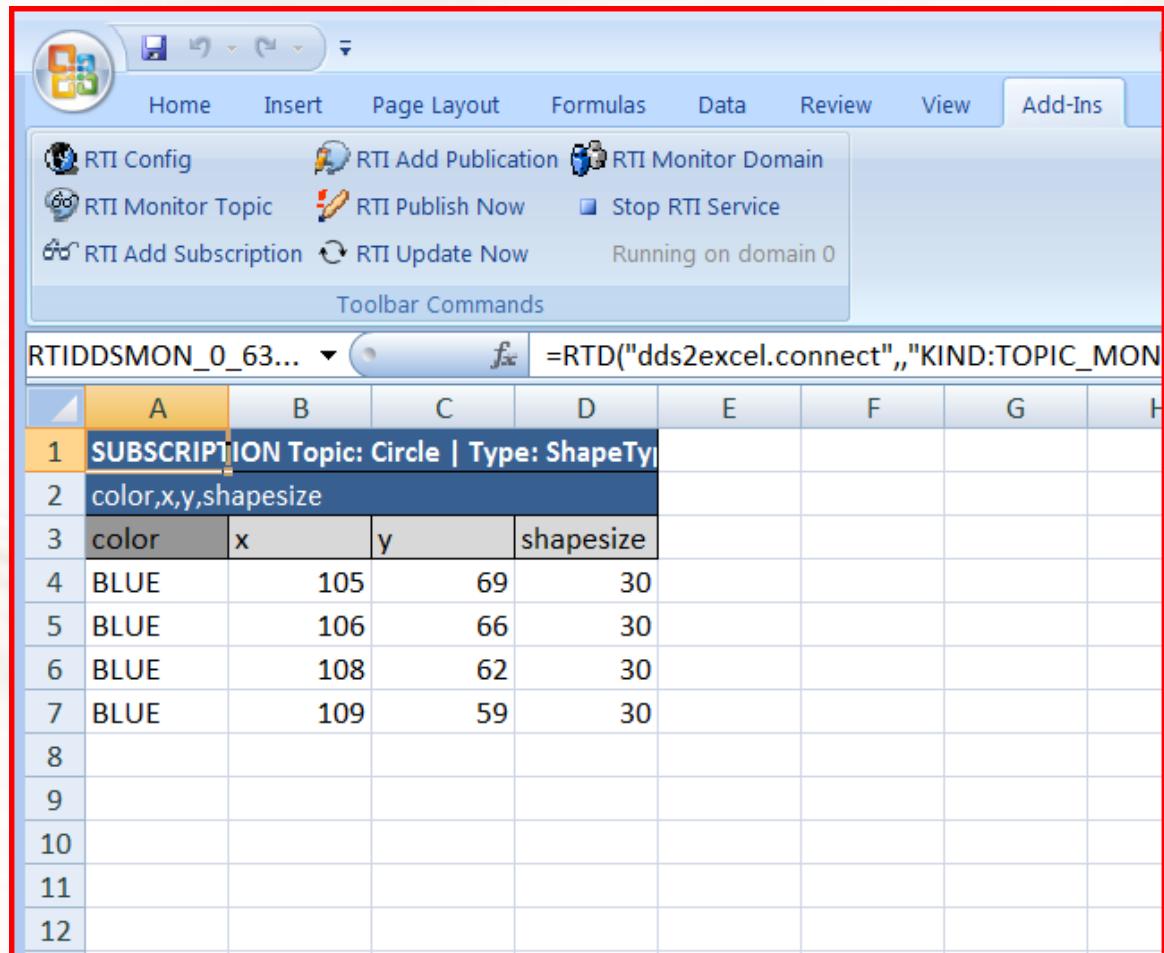


- Detailed statistics on traffic, errors, and resource usage
- Detailed system topology display
- Configurable alerts and thresholds
- Helps to Track and tune performance
- Helps in diagnosing unusual behavior



# Observe & Monitor: Excel Add-in

- Easy Integration
- Real-time updates
  - Spreadsheets
  - Charts
  - Formulas
- Content aware - learn data type dynamically



The screenshot shows an Excel spreadsheet with a red border around the entire window. The ribbon menu at the top has the 'Add-Ins' tab selected. The 'RTI' tab contains the following buttons: RTI Config, RTI Add Publication, RTI Monitor Domain, RTI Monitor Topic, RTI Publish Now, Stop RTI Service, RTI Add Subscription, RTI Update Now, and a status message 'Running on domain 0'. The formula bar shows a dropdown menu and the formula =RTD("dds2excel.connect","KIND:TOPIC\_MON"). The spreadsheet contains data in columns A, B, C, and D. Row 1 is a header with the formula =RTD("dds2excel.connect","KIND:TOPIC\_MON"). Rows 2 through 7 show data for 'color, x, y, shapesize'. Row 8 is empty. Rows 9 through 12 are also empty.

|    | A  | B   | C  | D         | E | F | G | H |
|----|--|-----|----|-----------|---|---|---|---|
| 1  | SUBSCRIPTION Topic: Circle   Type: ShapeType |     |    |           |   |   |   |   |
| 2  | color,x,y,shapesize                          |     |    |           |   |   |   |   |
| 3  | color  | x   | y  | shapesize |   |   |   |   |
| 4  | BLUE   | 105 | 69 | 30        |   |   |   |   |
| 5  | BLUE   | 106 | 66 | 30        |   |   |   |   |
| 6  | BLUE   | 108 | 62 | 30        |   |   |   |   |
| 7  | BLUE   | 109 | 59 | 30        |   |   |   |   |
| 8  |  |     |    |           |   |   |   |   |
| 9  |  |     |    |           |   |   |   |   |
| 10 |  |     |    |           |   |   |   |   |
| 11 |  |     |    |           |   |   |   |   |
| 12 |  |     |    |           |   |   |   |   |

# Control & Manage: RTI Admin Console



The screenshot displays three main windows of the RTI Admin Console:

- System Overview:** Shows the overall system health for four hosts: WIN-F4VA5EKQD11, atlas-rhel51-64, azalea, and rtidemo1-PC. The table includes columns for Hosts, Health, Up-Time, CPU (%), Used Memory, Free Memory, Used Swap Memory, and Free Swap Memory.
- Service Configuration View/Edit:** Shows the configuration for a routing\_service named "default". The configuration XML includes details like schema location, group\_name, name, and domain\_route.
- Global Log View:** Shows a log table with columns for Seq. #, Time, Level, Category, and Message. The log entries are color-coded by level (Fatal, Severe, Error, Warning, Notice, Info, Debug, Trace).

Bottom status bar: 3/26/2012, Pause Log Display, Show Remote Logger Settings.

- Overall System Health / Status

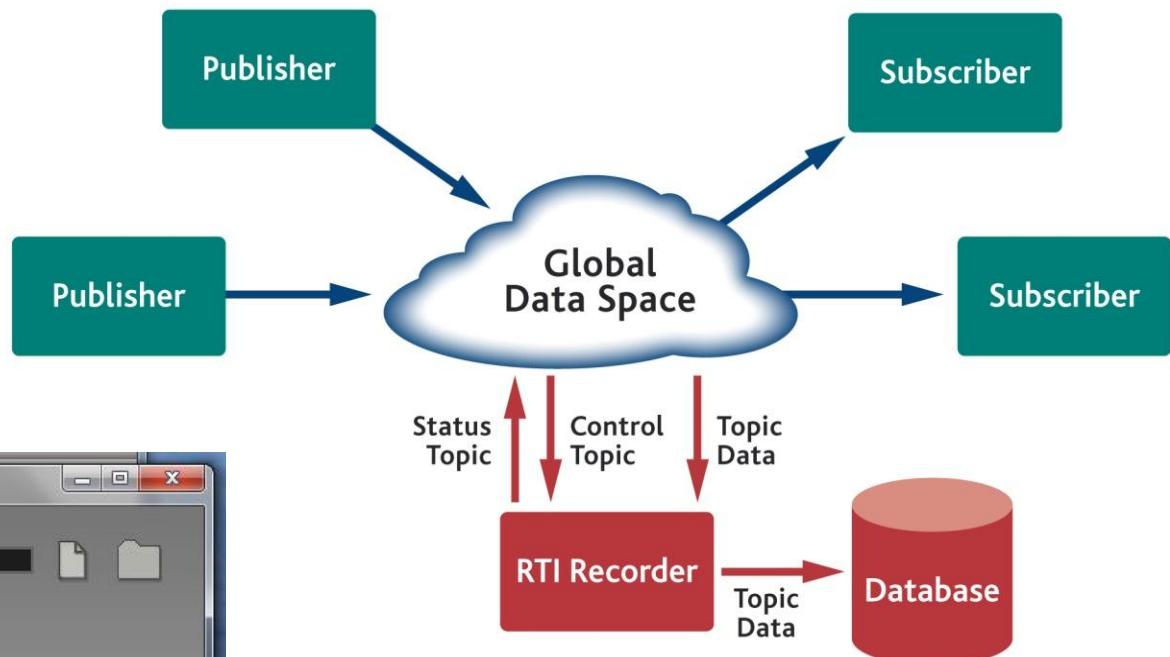
- Service Configuration View/Edit

- Global Log View

# Reproduce, Analyze, Test : RTI Recording Console



- Record real-time data for future analysis and debugging
- Replay function
- Console interface



# Conclusion

- DDS & RTPS open the door to a whole ecosystem of interoperable tools & services
- These can be developed by any vendor and interoperate with any compliant implementation
- DDS-XTYPES spec has provided what is needed to build these tools in an interoperable manner
- RTI Connex Tools Provides the practical well-tested toolset you need to succeed with DDS