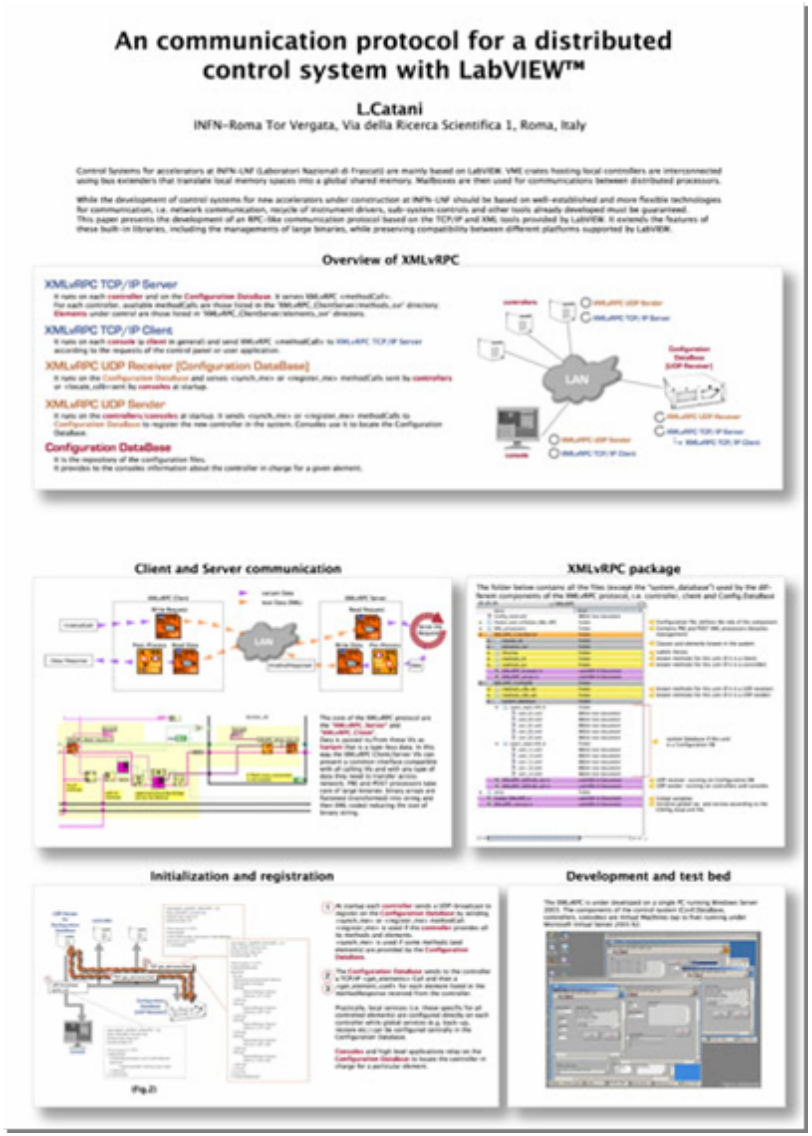

A communication protocol for a distributed control system with LabVIEW

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what is it?

- it is a tentative to develop a communication protocol to support distributed controls using the LabVIEW TCP/IP and UDP libraries.
- it is also potentially compatible with other standards or widely used protocols
- actually, it started as a development of XML-RPC in LabVIEW, let's call it XMLvRPC

motivations

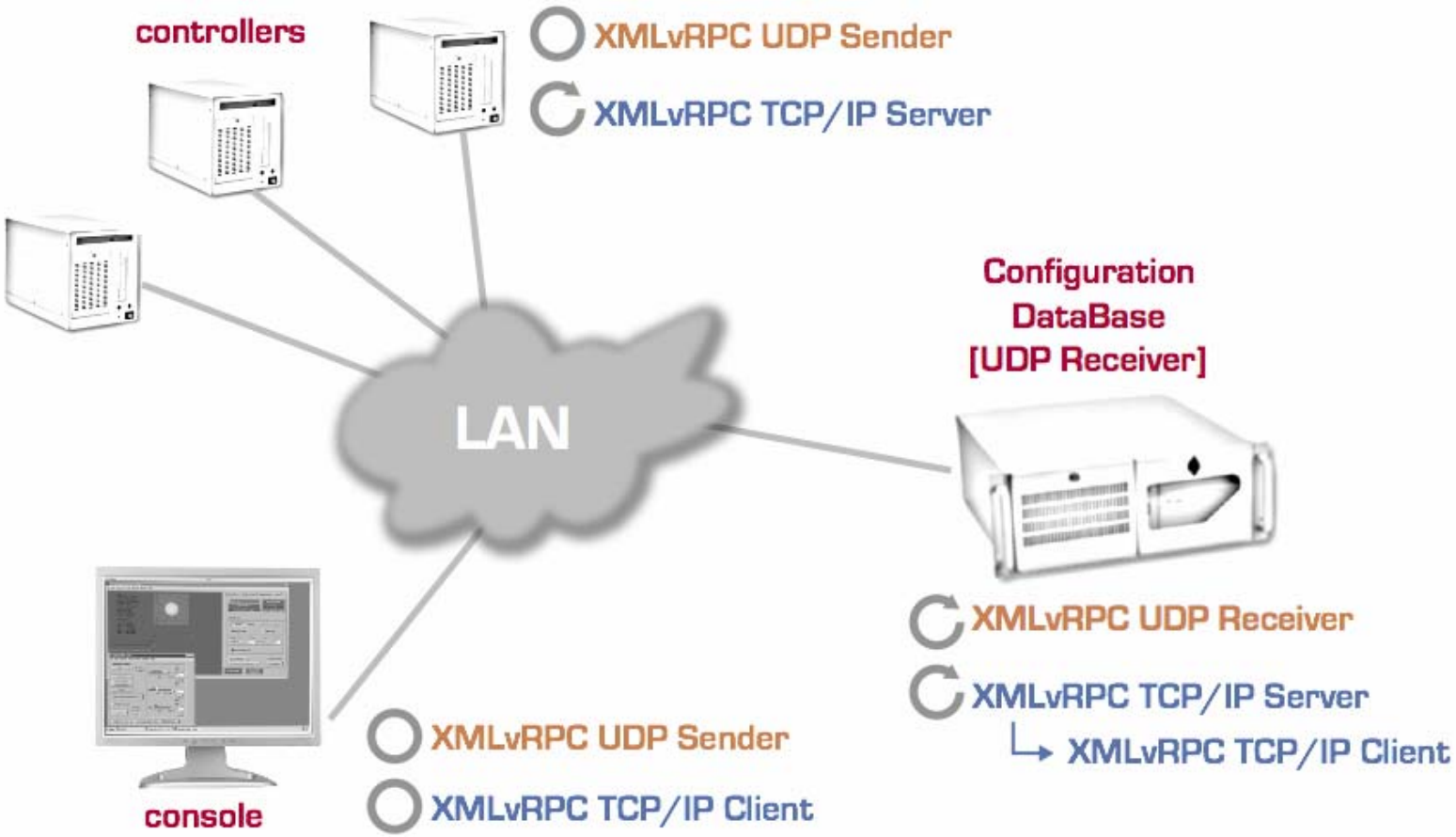
LV supports distributed controls in different ways:

- VI Server
- DataSocket
- VI reference
- TCP/IP and UDP
- http server
- and interface to .NET

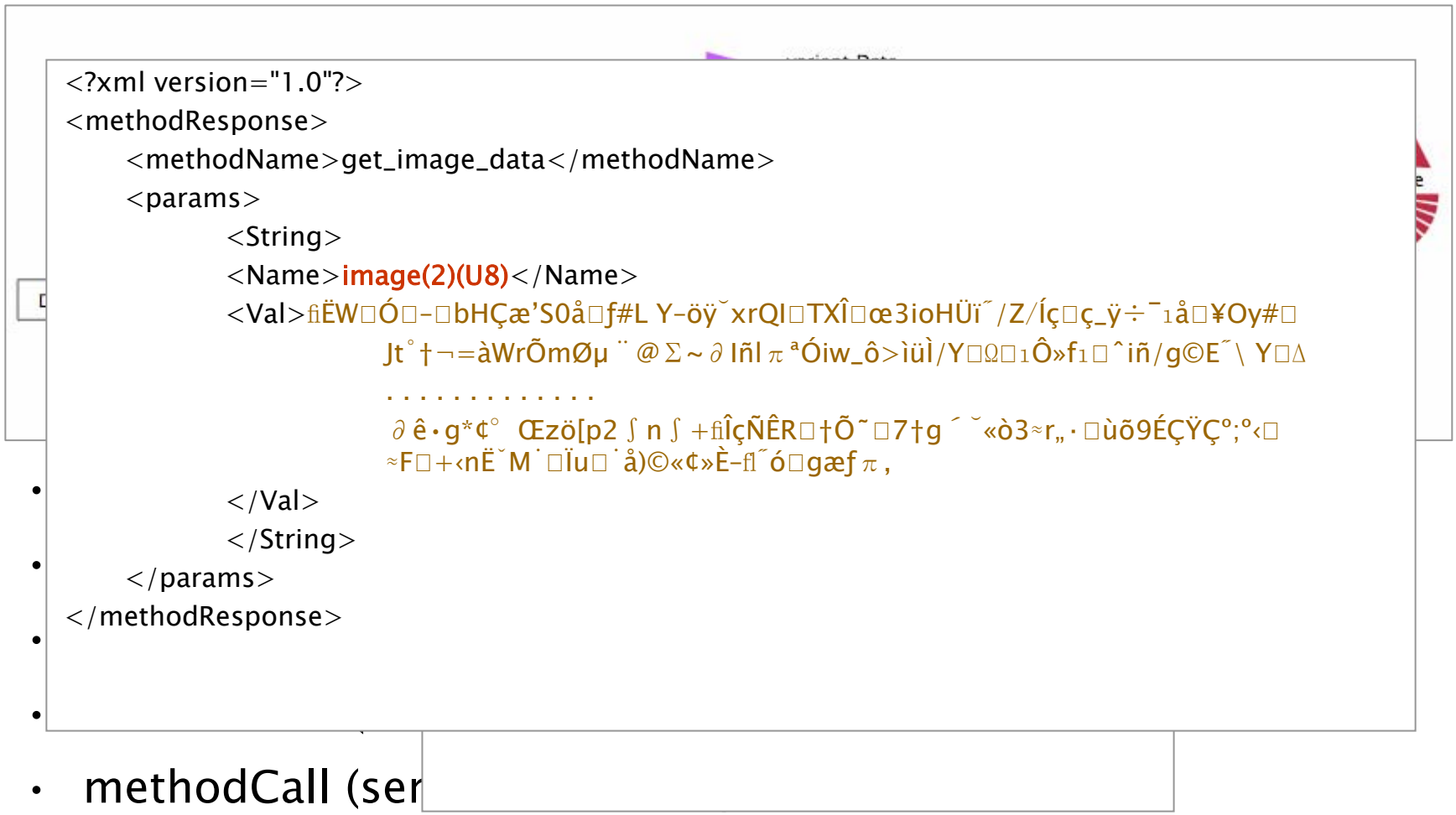
they all work fine but only TCP/IP and UDP provides enough flexibility….

..and the possibility to integrate non-LabVIEW systems

main components in XMLvRPC

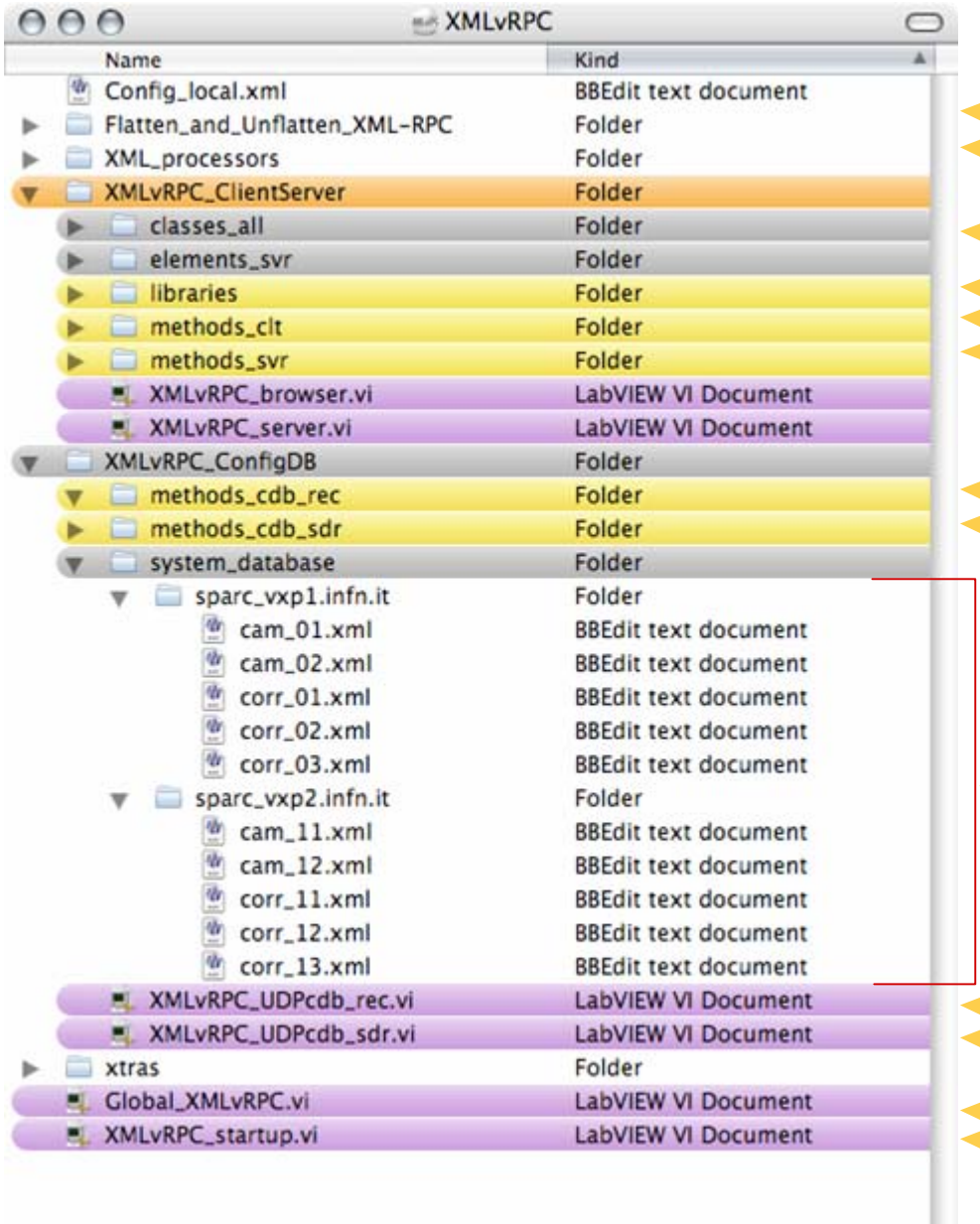


the XMLvRPC client and server



- methodCall (ser

the package (same for all)



Configuration file; defines the role of the component

Contains PRE and POST XML processors (binaries management)

Classes and elements known in the system

subVIs library

known methods for this unit (if it is a client)

known methods for this unit (if it is a controller)

known methods for this unit (if it is a UDP receiver)

known methods for this unit (if it is a UDP sender)

system Database if this unit is a Configuration DB

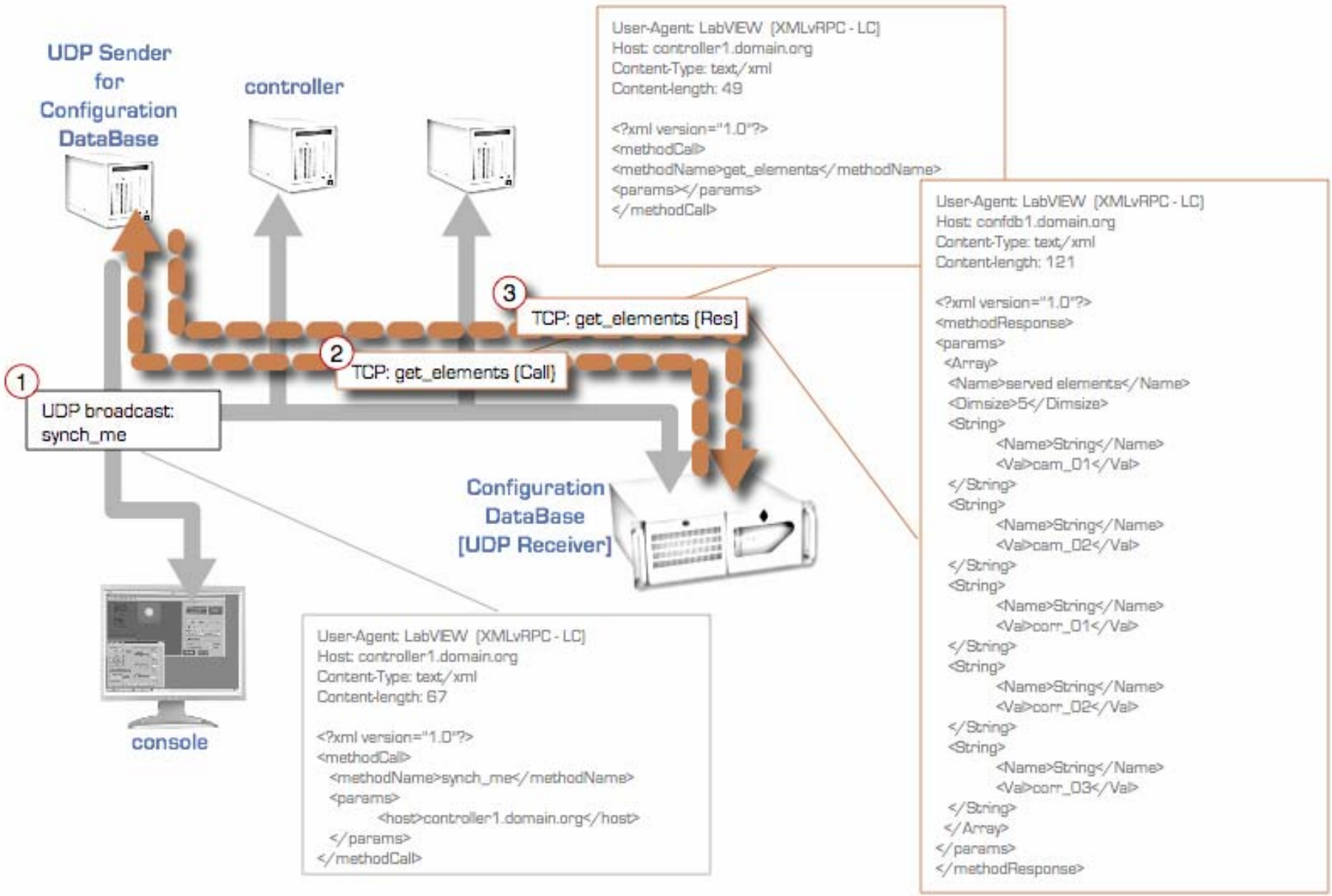
UDP receiver: running on Configuration DB

UDP sender: running on controllers and consoles

Global variables

Initialize global var. and service according to the COnfig_local.xml file

services registration at startup triggered by UDP broadcast



under development on VMs on a MS Virtual Server R2