DelphiDay italian conference

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Edizione 2019

C/S → MULTITIER

Best Practices to migrate Delphi Projects

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BLOG

CODING IS FUN

blog.paolorossi.net

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GITHUB
PROJECTS

github.com/paolo-rossi

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GITHUB PROJECTS

Delphi JWT

JSON Web Token Library for REST
(and not only REST)

Delphi Neon

JSON Serialization Library for REST
(and not only REST)

GITHUB PROJECTS

Linux Daemon

Library to build real Linux daemons

OPENAPI 3.0
DELPHI LIBRARY

OpenAPI-Delphi

OpenAPI 3.0 library for Delphi

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GITHUB PROJECTS

WiRL Project

JAX-RS Like REST Library for Delphi

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AGENDA

- ➔ Introduction
- ➔ The past: Delphi C/S apps
  - ◆ Good planning and architecture
  - ◆ 20 (more) years
- ➔ n-tier architecture
  - ◆ DB-based apps (big C/S apps)
  - ◆ Automation apps
  - ◆ IoT gateway/supervisor

INTRODUCTION

DELPHI APPS

- The typical Delphi app
  - C/S apps with LAN based DB connectivity
  - (Several BDE-based applications)
  - Socket communication only for devices
  - HTTP communication only to interact with some (simple) web server
  - SOAP clients with some third party server

USE SCENARIO

C/S applications	n-tier applications
LAN clients	LAN clients
	Web apps
	Mobile apps
	Automation apps
	IoT gateway/supervisor

C/S -> N-TIER

- The typical Delphi app
    - C/S app with LAN based DB connectivity
    - Still BDE-based applications
    - Very rich UI (sometimes too rich!)
    - UI components attached directly to design-time datasets
    - A lot of events to glue it all

The very definition of a monolith!

C/S -> N-TIER

- ➔ It’s a 2008-2010 problem for other languages
- ➔ Delphi apps for the large part are still desktop apps with direct access to the database

An it’s not Delphi’s fault !!

We have to fill the gap!

N-TIER

N-TIER

- The n-tier architecture is suitable for
  - Web apps
  - Mobile apps
  - DB-based apps (classic C/S apps)
  - Automation apps
  - IoT gateway/supervisor

N-TIER

- An n-tier app is essentially an HTTP (TCP, UDP, etc...) service that listens on a port
  - Requests are from several client
  - Requests can be at the same time
  - At each request the server spawns a thread
- The data (object, variables) must be thread-safe
  - The code that access the data must be thread-safe

THREAD SAFETY

- Local variables/objects are (usually) thread-safe
- Global variables/objects are not!
- Design-time components (usually) are not!
- UI components are not (no need to migrate these)
- Make routines to safely access your variables/objects
  - Learn (at least) TCriticalSection

Demo

MIGRATION

MIGRATION

- What to migrate
  - Data access units
  - Business logic units (if any)
  - Utility classes
  - ...
- Migrate or start from scratch?

DATA ACCESS PORTING

1. Still using the BDE?
   - FireDAC migration
2. Not using a DataModule?
   - Please use a DataModule!
3. Code is not thread-safe?
   - Make your DB code thread-safe

Now 90% of your DB code is ready to be migrated to a service

SECURITY

SECURITY

- Think about security from day 0
- Your service(s) will be accessed from outside the LAN
  - Meaning: Internet
- Never expose your database server
- Use REST libraries with **known** security implementations
  - Use always **JWT** as a token that contains client side information
  - Learn all about **JWT** and its use

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THANK YOU

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