HSR
HOCHSCHULE FÜR TECHNIK
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FHO Fachhochschule Ostschweiz

roadster
advanced web scada system

Bachelor thesis

Roadster High Availability

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for industry client
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Abstract

TODO introduction

TODO approach and technologies

TODO result

Declaration of Originality

We hereby confirm that we are the sole authors of this document and the described changes to the Roadster framework and libraries developed.

TODO any usage agreements or license

Thank You

TODO anyone we'd like to thank

Management Summary

Initial Situation

TODO describe initial situation, not too technical

Roadster is a next generation monitoring application.

Software Development Process

TODO describe decision to use RUP/Scrum TODO maybe describe what project management tools we'll be using

Project Phases

TODO describe this phase in retrospection

Inception

TODO include Gantt chart for this phase TODO describe this phase in retrospection

Elaboration

TODO include Gantt chart for this phase TODO describe this phase in retrospection

Construction

TODO include Gantt chart for this phase TODO describe this phase in retrospection

Transition

TODO include Gantt chart for this phase TODO describe this phase in retrospection

Results

TODO describe results

Contents

List of Figures

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Listings

Part I

Technical Report

Chapter 1

Context

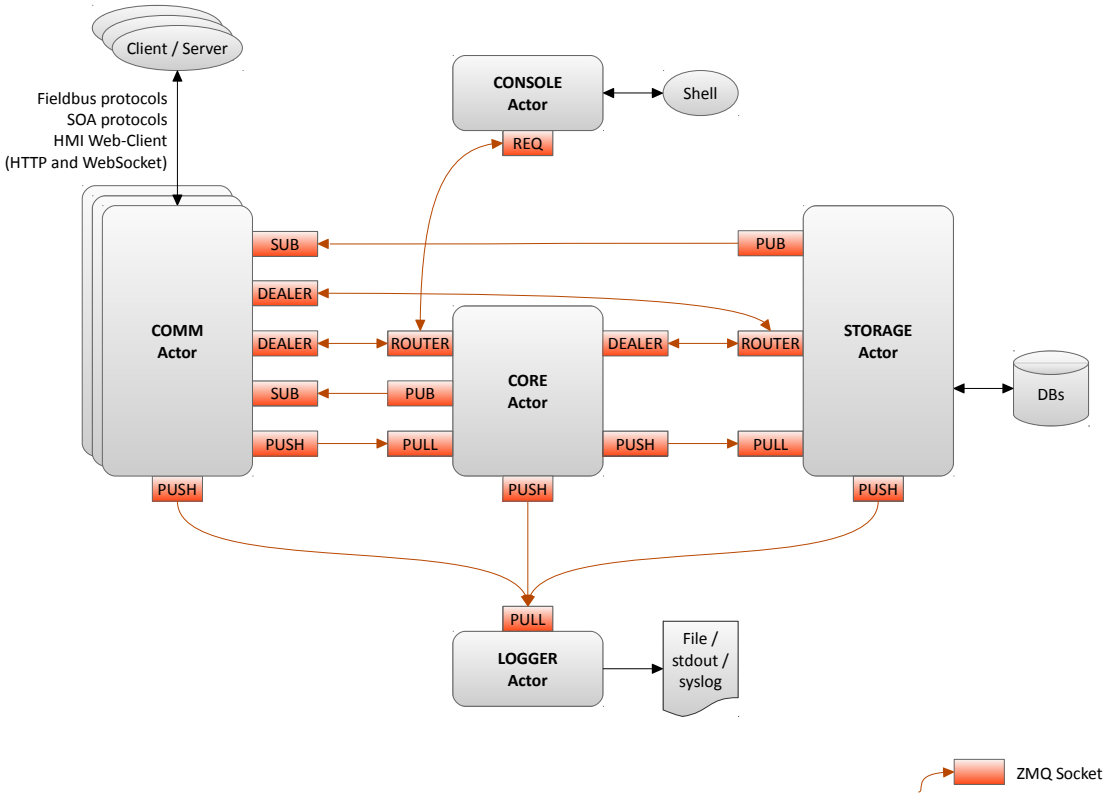
TODO what's this thesis about (general scope)

Initial Situation

TODO What's Roadster and its goals

Software Architecture

TODO Roadster architecture



Goals

TODO mandatory goals

Optional Goals

TODO optional goals

Problem Description

TODO our tasks

Non-Functional Requirements

TODO the NFRs

Chapter 2

About ZMQ

TODO crash course in ZMQ/CZMQ/CZTop
TODO strong abstraction (one socket for many connections, connection handling transparent, transport and encryption transparent, no concept of peer addresses)
TODO brokerless/with broker, up to you
TODO basic patterns
TODO extended patterns
TODO not only a "MOM", but a multi threading library (Actor pattern)

Chapter 3

Port

Concept

TODO explain binding options out there, why CZTop
TODO explain concept of exchanging ffi-rzmq with CZTop

Implementation

TODO show certain excerpts how it was done

Chapter 4

Cluster

Concept

TODO explain planned multi node setup
TODO election/design of appropriate protocol
TODO explain Clustered Hashmap Protocol (I guess)

Implementation

TODO explain how to implement/integrate CHP

Chapter 5

High Availability

Concept

TODO explain binary star pattern and how to implement/integrate it

Implementation

TODO explain how to implement/integrate Binary Star

Chapter 6

Highly Available OPC UA Server

TODO This is the optional goal.
TODO explain new opportunity for OPC UA HA server

Concept

TODO describe whatever needs to be described

Implementation

TODO describe whatever needs to be described

Chapter 7

Conclusion

TODO write conclusion, we're the best and everything is awesome

Part II

Appendix

Appendix A

Self Reflection

TODO how did we perform, completion of goals, accuracy of estimated efforts, efficiency, resourcefulness

Appendix B

Project Plan

Organization

TODO roles, how we organize ourselves and how we communicate with each other

Appendix C

Infrastructural Problems

TODO describe serious problems here, if any

Project Management Software

TODO Github/Trello/Harvest/Everhour/Elegantt/Ganttify/Redmine

TODO add any other appendix chapters here, like detailed ZMQ stuff, usage manuals, ...