ITALABS
THE ART OF INNOVATION

ITA Labs

Custom software development
Company profile

Edition 2022.03

Featured Competencies

Custom design and development of high load identification, management and transaction processing systems:

- Micro-service architectures

- Distributed services and applications

- High-load services

- Transaction processing services

- IoT services

- Management, control and monitoring systems

- Biometric identification systems

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Featured Projects

- **Biometrics**: biometric software (a set of servers) to ensure the uniqueness of voters nationwide for **tens of millions** of voters (**trillions** of comparisons)

- **IoT**: real time monitoring server for distributed security sensors: **50.000** real estate objects, **800.000** sensors, **50.000** tcp/ip simultaneous connections, **half a billion** requests daily

- **FinTech**: transaction processing systems (the core of the online banking system), a cryptographic confirmation system for the financial and non-financial transactions from the mobile phone of the user

- **PKI / Security**: the corporate system (its backend) management and data protection for **tens of thousands** of clients, the server (its core) second factor authentication over OTP / U2F from **10.000** requests per second on one host

- **Chat bots**: implementation of chat bots (this is also backend) including the usage of Microsoft AI services
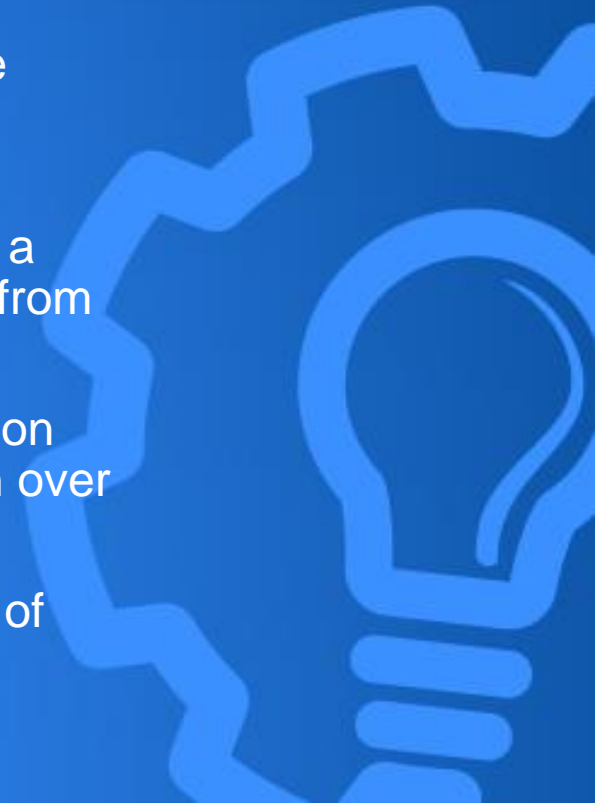
Featured Clients

Aladdin R.D.

- **Enterprise Security** – Corporate disk encryption control server core components

- **Enterprise Security** – Smartcard & certificate lifecycle management control server core components, **100K** users

- **Enterpise Security** – High load authentication service core components, **10K** req/sec, **3M** users

Rosohrana

- **IoT** – high load server to monitor **800K** alarm/fire sensors in real time

Ipsidy

Fintech – Secure transactions service with PKI/Biometrics confirmation

Fintech – Remote ID document acquisition and biometric verification system with validation using federal databases

Sovintegra

eGov – Management system for national project of labor efficiency increasing

CSI Group

Hotline – Corporate incident and investigation management

ID Solutions

- **Biometrics** – Country wide biomertic search system (AFIS), **6M+** records, **60** servers in the cluster

- **Biometrics** – Biometric identity management, service and web portal

- **Biometrics** – Enrollment Kit

- **Other** - A lot of SDKs and integration projects

NDA Bank

Fintech - Online banking system core, manual and automated payments, integration with back office

Highlights

Microsoft Partner | Silver Application Development

- 17 years of server side software development
- Projects for top famous companies and government authorities, deployed on 3 continents of the world
- Microsoft Certified Partner
- Complete software development cycle
- High maturity infrastructure and processes
- Transparent software development process
- Individual software development infrastructure for each customer
- Own test laboratory with both real hardware and 100+ virtual machines with completely automated tests for each project

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Featured Technologies

Platforms

- .NET Core / .NET
- Windows
- Linux

WEB

- ASP.NET MVC
- React / Bootstrap
- jQuery
- DevExpress

UI

- WinForms
- WPF
- DevExpress

Database

- MS SQL / MySQL / PostgreSQL / MongoDB / SQLite / Oracle
- EF / EF.Core / ADO.NET
- LINQ, FTSE

Services

- Docker
- Windows Services
- Performance Counters & ETW
- Event logging & tracing
- MSI Installations

Network

- WCF / WIF
- REST JSON/XML
- HTTP / SOAP
- TCP/IP, UDP
- Web Services
- WebApi
- Push notifications
- NLB
- Failover Cluster
- Redis Streams
- MSMQ
- Rabbit MQ

Security

- JWT, OAuth 2.0
- WS-Trust/WS-Sec/WS-Fed
- Active Directory / ADFS
- OTP RFC 2289, 4226
- Cryptography / PKCS
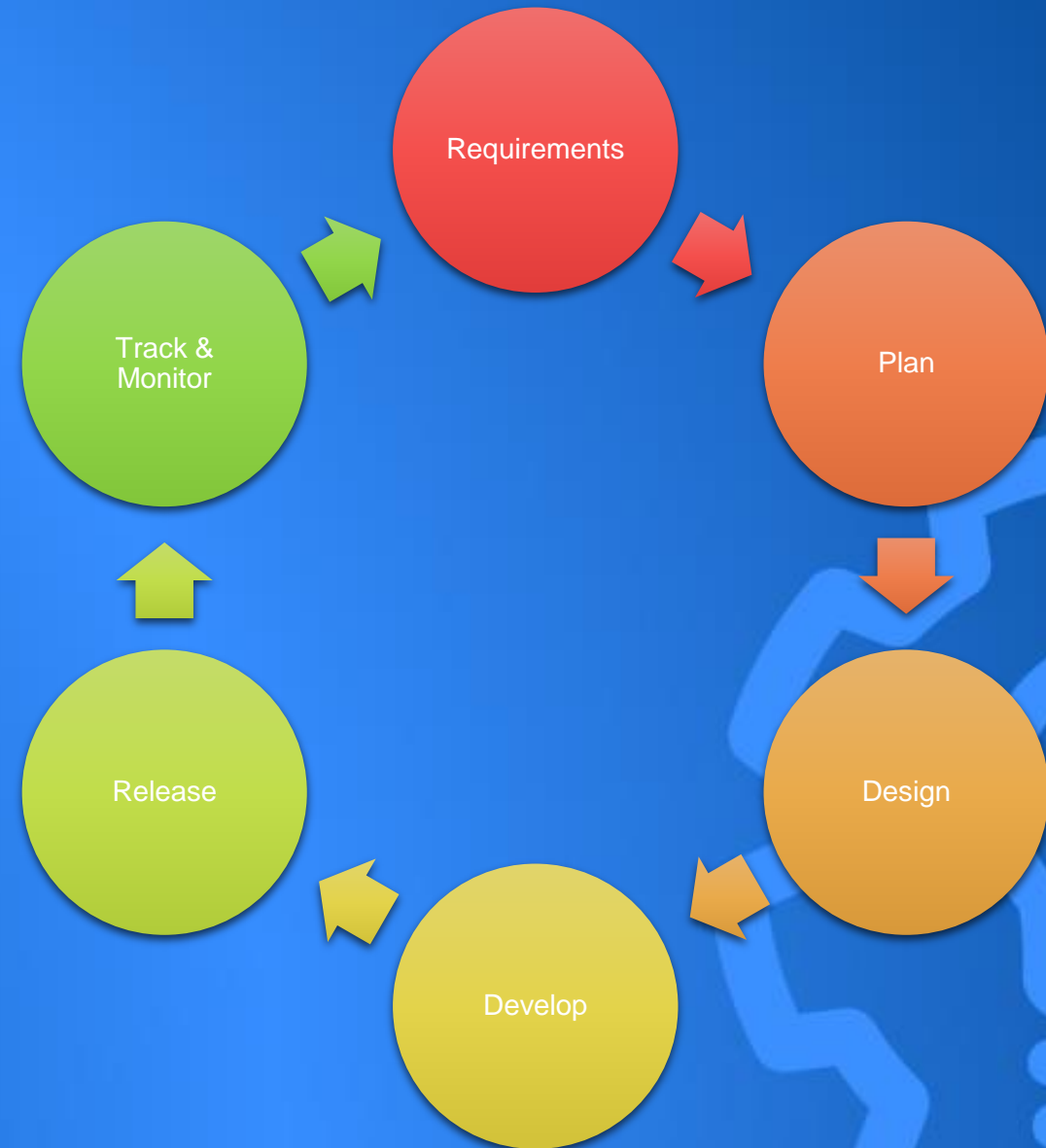- PKI / Smartcards
- U2F
- Biometrics
- HASP
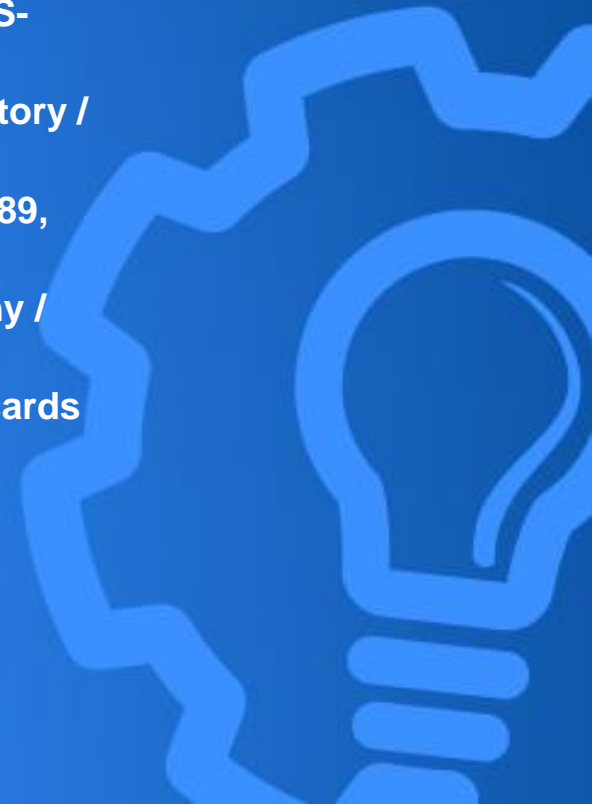
Agile Processes

Migrated from waterfall to adapted version of **SCRUM** methodology:

- Prioritized Backlog
- Sprints 1-3 weeks
- Virtual Stand-ups
- Online Demos
- Retrospective

Requirements

Plan

Design

Develop

Release

Track & Monitor

Quality Control

Develop & Commit code → Manual Code Review → Automated Build → Automated Static Code Analysis → Automated Tests → Manual Tests → Quality

Multilevel integrated quality control process:

- **Code Review** – manual code review process. Provides first level control to avoid architecturally and semantically wrong code
- **Automated Builds** – automated CI platform for builds in "sterile" infrastructure to guarantee that the right version is built in the right environment
- **Automated Static Code Analysis** – automatically finds most common coding errors
- **Automated Tests** – automated unit & integration tests to cover as many scenarios as possible to reduce human factor in testing
- **Manual Tests** – test case library based tests for functionality that hardly can be automated

Automated Release Engineering
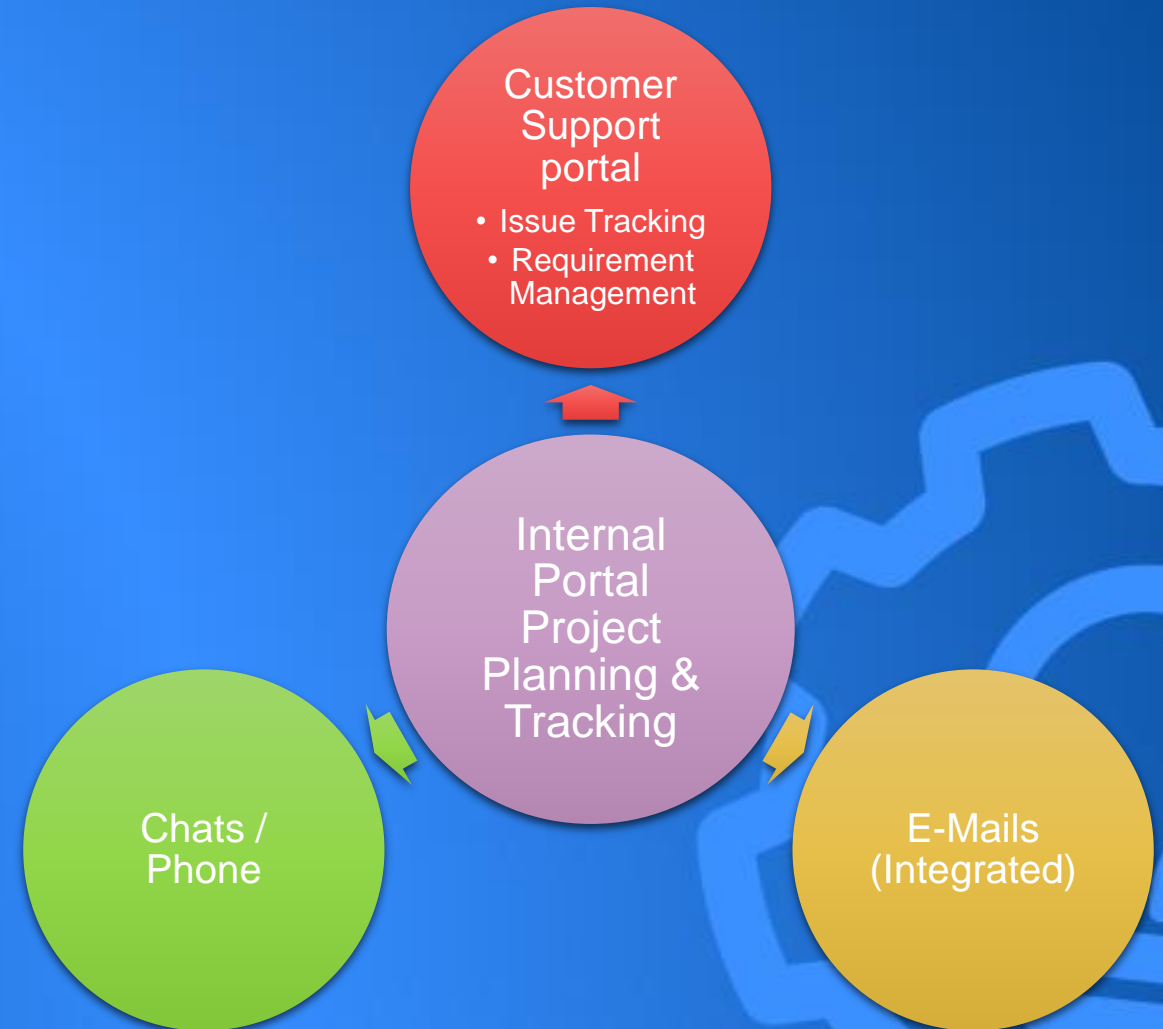
Release engineering process:

- Dedicated repository for each customer
- Dedicated build environment for each customer
- Automated product versioning scheme
- Standard delivery format
- Secure location to access deliverables

Dedicated
Environment
• Repository
• Build

Automated
Product
Versioning

Standardized
Delivery
Format

Secure
Location with
certificate
based
access

Customer Support

Customer support portal:

- **Support Portal** – Dedicated section on customer support portal for each customer
- **E-Mails** – Integrated into portal to provide customer multiple communication channels
- **Internal Portal** – Everything is integrated into internal portal to see and managed all things at one place

- **SLA** – 24h response time for critical issues

Customer Support portal
- Issue Tracking
- Requirement Management

Internal Portal Project Planning & Tracking

Chats / Phone

E-Mails (Integrated)

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