Konstantin Burkalev

Tech Lead/Senior Software Engineer/Architect

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PROFILE

Experienced technical professional with over 20 years in software architecture, development, and project management. Proven success in establishing development workflows from scratch in startups and enterprise companies, leading teams of 5-25 people, cultivating collaborative environments, and providing effective leadership with a deep understanding of the IT landscape. The WAMP Protocol editor and implementations author, active open source contributor.

KEY COMPETENCIES

- Strategic System Architecture Design with a keen focus on component systems, emphasizing security, reliability, and maintainability.
- Technical Expertise across diverse technologies and programming languages, spanning database design, API architecture, software security, UI/UX design, and home automation.
- Achieving an efficient development process, using knowledge sharing, coaching, and mentorship to grow the team and establish a high-performance organizational culture.

SKILLS

Software Architecture, API Design, Software security, Database design, UI/UX Design, Development workflow, Project management, Mentoring, Home Automation, Internet of things, Workflow automation, Linux, Golang, JavaScript, Dart/Flutter, PHP, Python, Lua, Node.js, PostgreSQL, MySQL, Oracle DB, RabbitMQ, Redis, Ansible, AWS

PROFESSIONAL EXPERIENCE

Jul 2022 – Dec 2023
Senior Software Architect
Simple Things, USA, IoT Platform 🔗
Formulated and implemented an exhaustive security strategy for an IoT platform.

- Architected and developed End-to-End Encryption across the system, including local and cloud services, web portal, and mobile app (in Golang, Python, JS, and Dart/Flutter stacks).
- Strengthened platform security by designing and implementing a customized WAMP Attribute-Based Access Control (ABAC) system (in Golang as an extension to WAMP Router, Golang client SDK, JS client SDK, Python client SDK).
- Designed and executed Key-Exchange and Locking Services (in Golang, including bitbake recipes for Yocto OS build).
- Crafted WebSocket-based WAMP Client for Arduino/FreeRTOS Platform (in C++).

Tech stack: Yocto-based Linux build, WAMP Protocol, Golang, Python, JavaScript, Node.js, Vue.js, Dart/Flutter, Arduino/C++, PostgreSQL, AWS.

Jun 2020 – May 2022
Chief Technical Officer
"Postnauka" Publishing House, edTech Company, LMS 🔗
Launched R&D by forming a full-stack team of 5 people and insourcing.

- Architected the Learning Management System (LMS) design and implemented it with the team (JS/Vue frontend, PHP/Symfony backend with PostgreSQL DB and RabbitMQ)
- Structured development workflow lifecycle.
- Automated CI/CD pipelines, environments, and deployments (crafted ansible playbooks, allowing automated deployments to dev/test/stage/prod environments).
- Initiated the product team to strategize the roadmap, culminating in a successful product launch.
- Convinced the product team to prioritize tasks, resulting in the successful launch of a CRM system featuring statistics dashboards, email newsletters, and notifications.

Tech stack: API-first approach, PostgreSQL, Mysql, Redis, RabbitMQ, PHP/Symfony, Vue.js/Nuxt.js, SendGrid, Telegram API, Ansible.

Sep 2019 – Feb 2020
Head of the Portal Development Group
JSA Group, Digital Transformations, Various industries automation 🔗
Initiated and led the development of a plant construction monitoring system, successfully gathering and guiding an initial team of 7 people.

- Organized the dev team and set up the project development from the ground.
- Defined the architecture for the system.

- In collaboration with designer invented a distinctive UI solution for comparing photos over time.

Tech stack: PostgreSQL, React.js, Lua+Nginx, WAMP.

Apr 2013 – Sep 2019 **Software Architect**
JSC "Gollard", Enterprise-level Security Systems
Spearheaded and empowered cross-functional product development teams encompassing database, web, and desktop technologies, scaling from 5 to over 20 members. Orchestrated the successful launch of security system versions 2 and 3.

- Reorganized a disorderly development process into a structured system with explicit roles and stages, product planning, and project documentation, unifying business deadlines with development goals.
- Revamped a modular architecture for combining independent installations into a unified information space.
- Pioneered a unified protocol governing system events and custom script actions, enhancing efficiency and interoperability.
- Devised and executed a robust internal and public API infrastructure utilizing PHP/Symfony and Lua/Nginx for access control.
- Guided the enhancement of application-level mechanisms for data migration between system installations, crafting a resilient REST API with progressive retries, socket-breakers, and rigorous data verification protocols.
- Guided several teammates from interns to lead developers.

Tech stack: Linux, PostgreSQL, PHP, JavaScript/React.js, Nginx+Lua, WAMP, C#.NET/WPF, ESRI ArcGIS

Apr 2009 – Apr 2013 **Leading Specialist**
JSC "Gollard", Enterprise-level Security Systems
Improved system security and investigated the system migration to Oracle DB.

- Introduced a Role-Based Access Control (RBAC) system, allowing flexible and convenient system administration.
- Assembled a mechanism for seamless migration from Microsoft SQL Server to Oracle Database.

Tech stack: PHP, JavaScript, Oracle DB, MS SQL Server, ESRI ArcGIS

Apr 2006 – Apr 2009 **Developer**
JSC "Gollard", Enterprise-level Security Systems
Converted web clients from the legacy ASP to a modern PHP and JavaScript stack at that time.

Tech stack: PHP, JavaScript, ASP, MS SQL Server

⚒ PROJECTS

2017 – 2022 **Ticket Sales System**
Devised a ticket sales system in collaboration with a partner, currently operational at the Bolshoi Theatre of Russia, servicing 4k shows and 600k+ orders.

- Negotiated business requirements and proposed solutions.
- Designed the system architecture and data flows with a focus on security and fault tolerance.
- Automated servers and services configuration and deployment.
- Defined and developed the API (Open API Specification and JS/Node implementation).
- Integrated the payment gateway into site flow.
- Created a ticket sales website and a mobile web client for ticket inspectors.

2014 – Present **WAMP** 🔗
The Web Application Messaging Protocol
An active member of the Web Application Messaging Protocol (WAMP) development group.

- Author of *Progressive Call Invocations*, *Payload Passthru* and *End-2-End Encryption* specification.
- Author and maintainer of JavaScript WAMP client 🔗 implementation.
- Author and maintainer of Lua WAMP client 🔗 and router 🔗 implementations.
- Maintainer of Golang WAMP client and router 🔗 implementations.
- Maintainer of Dart WAMP client 🔗 implementation.

2013 – Present **SDCasts** 🔗
Software Development podCast
A podcast about software development featuring IT experts, including security specialists, project authors, architects, CTOs, engineers, and product managers, providing a broad industry perspective and tracking trends.

🎓 EDUCATION

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Master's Degree

MIEM, Moscow State Institute of Electronics and Mathematics 🔗

Diploma with honors in the specialty "Computer-aided design systems"

Oracle Certified Expert, Oracle Certified Professional

Oracle