



Cristian Cotoșman

MedTech Specialist | Healthcare | HW & SW Consultant | Solution Architect | Solution Deployment Specialist | Private & Public Cloud

Summary

Experienced Product Designer and solution architect with a demonstrated history of working in the medical device industry. Skilled in .NET Framework, C#, python, and Research and Development (R&D), Product Development, Cloud computing (private, public), IoT, Software and Hardware Architecture. Strong product management professional graduated from “Universitatea Politehnica Timisoara”.

Experience

Roche - Diabetes Care (RDC)

Solutions and System Architect

April 2022 - Present

As a solution architect my main responsibilities are:

- Requirements gathering from customers and other stakeholders (PO, PM, security, DevOps, etc.) for new services or solution or when new features are planned for existing solution(s)
- Define architecture and refine with the development team
- Document solution (software architecture document) including all level of diagrams according to guidelines and standards
- Drive and maintain architectural decision records (ADR)
- Define non-functional requirements according to ISO25010
- Review and help define technical specifications, security reviews, failure management and mitigation, infrastructure components, test plans and reports

As system architect my responsibilities extended to:

1. Defining internal standards for architecture and development (messaging formats and structures)
2. Defining and maintaining diagraming standards (based on C4 model)
3. Extending our internal tool set for diagraming to use new diagram as code and documentation as code with git driven design way of working
4. Creating templates with fellow architects to better standardize and make more efficient our work
5. Contribute to architectural runway and maintain the architectural governance for our systems
6. Collaborate with management and BO for product wide documentation and diagrams

Contact

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Top Skills

eHealth & Telemedicine

Research & Development

Solution and System Architecture

Software design

Cloud-native solution & deployment

Healthcare project management

Languages

Romanian (native)

English (proficient)

German (proficient)

Hungarian (upper-intermediate)

French (intermediate)

Patents

Sistem telemetric de telemedicine
(Telemetry telemedicine system)

Projects

Telemedicine software design & development for Romanian Space Agency

EU Funding Scheme - Romania Grant - real-time telemedicine

Lab samples and results management system for Testing Technologies - USA

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Technology stack incorporated:

1. Infrastructure:

- AWS
- Google cloud

2. Development and languages:

- Java 17+, SpringBoot
- NodeJS 16+
- Python, TensorFlow, etc.

Moebiusol S.R.L. (former CCLMed S.R.L.)

Technical Manager (CTO) and System Architect

September 2011 - Present

As a technical co-founder of a start-up, the greatest challenge but also the most rewarding one is to materialize the vision of the company by choosing the right team members, keeping the unity in a very diverse team (hardware, firmware, software, QA) and also assessing technologies, components and procedures. We managed this, and I mean "we" because all members participated, by bringing to the table knowledge and experience with various fields but also listening to the other team members when they raised possible concerns with choices. Hard work was definitely part of the job for everyone being during the design, implementation, prototyping or testing. Another major challenge is going back to "drawing board" and recognizing our mistakes, but we tackled those moments by understanding that only those persons don't make mistakes who don't work/contribute to the project. A few of my daily tasks, activities and responsibilities you have read if you reached this point, but, being a EU funded start-up (details available on the company's LinkedIn page) my responsibilities also included: numerous and extensive reports for the funding process (and not only); managing business processes in regards to rules and laws imposed by funding scheme; building and updating forecasts in regards of results expected, comparing with actual results; negotiating with suppliers for parts and services essential to the project's success and continuation of the funding (our EU funding had many stages associated to specific technical deliverables)

Well, in brief these are my responsibilities that I happily bared and continue to do so till the day I will quit this position. Main technologies used are .NET (BT, RT plotting, WCF, etc.), embedded C firmware and for hardware Texas Instruments, Würth Electronics and many more.

Significant projects and outcomes:

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- Real-time remote monitoring solution with multiple devices concurrently (the outcome is a system capable of reading from packs of multiple devices, actual number depends on doctor's requirements, display the parameters on a local system and send the same parameters in real-time to a tele-center where it can be viewed and analyzed by other medical personnel; the tele-center can handle numerous such packages at the same time, scalable as needed);
- Development of a new portable/wearable medical grade 12 channels + respiration ECG device with 4000 SPS (read), 24 bits sample resolution (the outcome is a miniaturized ECG device, 12 channels without digital interpolation, 24 bit resolution, 4000 SPS read and 2000 SPS display after filtering - hardware, firmware and integration with the remote monitoring software);
- System architecture and deployment of test samples and results management solution for laboratory - Testing Technologies Inc. USA (the outcome is a newly deployed software system for the lab on hybrid cloud infrastructure with a multi-layer security and a distributed architecture with redundant load balancing and high-availability of all the services, DB, apps, session stores, file storage, reverse proxies etc.);
- ISO 13485 and ISO 9001 for the company, products and services;
- MedTech/Tele-care expert representative of county government Timiș, Romania for CASA - Regions for Smart Living, a Project of Community Of Regions for Ambient Assisted Living (CORAL <https://cordis.europa.eu/article/id/150590-supporting-assisted-living-for-healthy-ageing>)

Technologies we used and incorporated in to the solutions:

- 1) Development:
 - a) .net Framework (WCF, WPF, ScyChart, Infragistics, etc.),
 - b) C/C++ for embedded systems (incl. debugger);
- 2) Tech paradigms:
 - a) UML modeling,
 - b) Test driven development,
 - c) Rapid prototyping,
 - d) Layered, client-server and micro services architectures.

For even more info and details about my life as a product and solution designer or as CTO I'm always available for a chat/call/meeting, of course with prior scheduling.

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effyBiz Inc.

Head of Technology and solution architect

October 2017 - May 2021

After meeting Mahesh Nair in 2015 we embarked together on a joint venture, a new path in my career. I had already experience with enterprise software development, team management at various scales, R&D as well as QA for many years and customer interaction, training as well as requirement gathering so it sounded appealing to work in the space of enterprise software but from a leading position able to shape the outcome of the products, projects, architecture, doing the requirements gathering with the customer, provide solutions for their pain points as well as do and oversee deployments and roll-outs. Being curious by nature and eager to do new and exciting things, naturally it sounded tempting. I started first by developing a few components and later on, as the potential grew as well as clients requirements (more complex projects), I took on more responsibilities including end to end project deliveries. Mahesh was always with the nice ideas and took care of the customer acquisition and we took care of the rest, offering the solutions to the pain-points, creating the necessary architecture(s) and implementing the solutions for CRMs/ERPs (including fleet management, assets management, document management, marketing automation, call center solutions and many more).

Key responsibilities include client meetings, consulting, delivering business proposals, RFP's, estimations, requirements gathering, designing and implementing security measures for customer platform (data security, high availability, data persistence, system security) lead the design team and deliver value to the clients. Proud to say that during my time we implemented solution for prestigious clients like TATA Assets Management and TATA Mutual Fund (Customer management, interaction and communication platform), Fino Payment Bank (integrated customer management, interaction, support and BI platform), Special Economic Zone Authority (SEZA) Botswana (migrating to cloud their management systems and implementing on-site and off-site security for workforce), Government of Zimbabwe (national electronic case management system with integrated online live proceedings), Syngenta Zambia (Integrated warehouse and production flow management) just to name a few.

Technologies we used and incorporated in to the solutions:

1) Development:

- a) .net Framework (incl. net Core, WCF),

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- b) python 2.7/3.x (incl. various libraries),
- c) PHP symphony;
- 2) Database:
 - a) PostgreSQL,
 - b) MySQL,
 - c) Mongo DB;
- 3) Other tools (security, high-availability, load balancing, etc.):
 - a) DB clustering and load balancing;
 - b) reverse proxy, caching and load balancing for web services;
- 4) Cloud solutions:
 - a) AWS: Amazon RDS, HealthLake, CloudTrail, CloudWatch, S3, EC2, VPC, IAM, Cognito, SES, SNS and a few more,
 - b) OpenNebula for private and hybrid cloud management,
 - c) OpenStack for cloud management and orchestrations.

Liceul Tehnic "Romulus Paraschivoiu"

Physics Teacher

September 2012 - July 2013 (school year 2012-2013)

As a Physics and Mathematics graduate, I felt happy to be part of the local school (mid-school and high school) as substitute teacher for physics and IT&C. This allowed me to participate in the growth process of the new generations as well as refine my presentation and training skills.

During my time as a teacher I had the pleasure of working with and guiding bright students, even some who today are engineers or in technical fields. As a notable achievement would like to mention that I started for the mid-school students a physic circle as a way to discuss their interest regarding phenomena that they observed or noticed but not covered in the national curricula as well as after school assistance to final year students preparing for their baccalaureate.

Common Technic Group S.R.L.

Administration / sales

November 2010 - October 2012

As part of my passion applied sciences and medical technology as well as being a great fan of German quality I ventured into importing and promoting in Romania medical devices made in Germany specifically for the cardio-pulmonary and circulatory system diagnostic field. As such I participated in local and national medical fairs and congresses, created marketing materials in print (many thanks to my friend Madalin Gageanu who helped with his great knowledge to create my first catalog) and digital (joomla based website with virtuemart shopping cart). This also revised

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and extended my knowledge into open-source technologies including Linux systems (especially Ubuntu). Parts of my job involved doing presentations and demos to medical practitioners, interacting with very smart people from various segments, creating quotations, preparing for fairs and a small amount of supply chain management. This really boosted my "people skills" as well as my ability to conduct demos, create presentations but also acquired new skills like requirements gathering, business consulting (finding best fit for various clinics and hospitals) and project management. My technical knowledge expanded significantly, especially medical tech, by participating at manufacturers' workshops and interactions with their R&D department. A great achievement was the collaboration with Institute for Space Science Romanian in their pilot project for a portable telemedicine system where we worked actively in the software execution role of the project as well supplying and integrating the medical devices. This paved the way for a patent as well as new start-up venture, CCLMed.

Datagroup Int.

QA Technician / Consultant (contractor for Beta Systems A.G.)

May 2007 - November 2010

I started my journey as a QA technician but ended up having a consulting as well as a QA role for the partner company Beta Systems A.G. A funny fact about my recruitment is that I responded to job ad for a Writer/Spell checker for German documents, but after sending my CV when I went to the interview (of course after passing the German language test) the HR head who was conducting the interview asked me to actually join the company for a very different position, the QA technician they were looking for their partner in Germany. After my first week at the office getting familial with certain technology paradigms that will be used in my future work, I went to Germany to the Beta System's development center in Augsburg where I should have stayed 6 weeks for training and induction, but to my great surprise I spent most of the next 3+ years there working, advancing my knowledge and career. During my training I got quickly involved into a project courtesy of my German colleagues and manager (Mr. Gerhard Smischek - Vielen Dank für die Gelegenheit) which propelled me to even conduct a part of the training for the Romanian team members that followed me after a few weeks and also being offered a consulting role besides the QA one I had for their newest project at Postbank A.G. Germany. During the next years I worked on workflow creation and optimization for the section of OCR and automated document recognition and classification, data set optimization and data

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set split for classifier training and testing (in modern terms would be data scientist).

Other parts of my key achievements would be:

- creation of test environments,
- design and development of validators,
- assisting other colleagues,
- training and consulting for end-customer,
- a process for continuous automated classifier improvement for the live system based on automated confidence retrieval as well as data retrieval from manual correction sections.

O-metall S.R.L.

Business Development Officer

May 2006 - January 2007

As part of my responsibilities I gladly took on, were the opening of the Romanian branch of the company (warehouse and sales office) together with the Deputy Director (then was Pierre Ehrhardt) and promoting the company products on the national market. Achievements worth mentioning include:

- tendered for the plot on which the Romanian warehouse and headquarters;
- organized the site for the build including procurement management for the raw materials and worker recruitment and oversight;
- I represented the company at TIB (International Technical Trade Bucharest) 2016 and Expo Construct together with a colleague from Luxembourg;
- actively participated at the design and translation/writing of the Romanian Catalogue
- was the translator for the CEO at all his visits and negotiations.

Tim-Cred S.R.L.

Consultant

2005 - 2007

As a consultant of a loan brokerage company my duties were: promoting the loans in our portfolio as well as analyzing and advising potential customers on the best deals for their respective profile/credit score; creating and preprocessing the documentation for the loan- developing the western region branch (Romania). Some of my notable achievements:

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in my first month I had the highest volume of approved loans in the company; In 2017 I recruited 2 new consultants who, after training with me, had exceptional results (first loan inside his first week and the other became the manager of a new branch)

C.M.I. Dr. Cotoșman

Analyst programmer

March 2002 - November 2006

My first job, but already a tech enthusiast, gave me the great opportunity to:

- prepare monthly reports and statistics according to national Law and regulations (private medical doctors);
- technical representative in relation with National Insurance House and Ministry of Health;
- medical devices and IT infrastructure implementation and maintenance.

In my time at the clinic I note a few achievements:

- automating report generation first with FoxPro (for dos) and later with MS Office;
- implemented a small computer network- implementing computerized aided medical devices (ECG, ultrasound).

Education

Politehnica University of Timisoara

Biomedical/Medical Engineering · (2001 - 2004)

Liceul Teoretic Jean Louis Calderon Timișoara

BS, Mathematics, Physics, French · (1997 - 2001)

Grup școlar "Romulus Paraschivoiu" Lovrin

(September 1993 - June 1997)

Skills

Medical engineering and standards: eHealth & Digital Health, Telecare, Medical device & software development, ISO13485, 93/42/EEC

IT&C industry knowledge: Software architecture & development, Product development, monolithic & micro-services architecture

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Cyber security: user access & management (Ldap, OAuth2, custom), identity management (AWS, Azure identity management Auth0), “zero-trust” network, certificate management, VPN, antivirus, firewall, intrusion prevention, reverse and forward proxy, end-to-end encryption

Tools & technologies: MS .net (C#, VB.net, F#, WCF, WinForms, WPF, asp.net), Relational databases (MsSQL, MySQL, Oracle, PostgreSQL), UML modeling, Operating Systems (Ubuntu, Windows server & desktop, RHEL, CentOS), Microsoft Office

Cloud and virtualization: cloud-native solutions based on containers (Docker) or VM instances (cloud agnostic), elastic load balancing (application & network), AWS and Azure tools set

Source control management, issue tracking & Continuous integration: GitLab, CircleCI, Subversion, GitHub, Redmine