

Latest Trends in Software Architecture / Development

Boston .NET Architecture Group
January 18, 2023

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Last Review:
September 15, 2021

Latest Trends in Software Architecture and Development

Slides: <https://roberthurlbut.com/r/BNAGSep2021>

Reviewed in September, 2021

- Covid-19 pandemic since early 2020 – still impacting industry
- Some returning to offices, some not
 - Impacts on communication?
 - Work / Life balance
- Work opportunities

Reviewed in September, 2021

- Cloud everywhere, Edge Computing – CDNs, Containerization – Kubernetes is leading, Docker slipping away, Quantum Computing, Blockchain
- Cyber Security focus, Artificial Intelligence / Machine Learning, Internet of Things, Big Data, Progressive Web Applications (PWA)
- Primary Languages: Java/JVM, Python, JavaScript (React over Angular?), .NET (?)
- New/Other Languages: Rust, Go, Kotlin, Swift, TypeScript

Latest Trends (January, 2023)

Work

- Covid-19 pandemic since early 2020 – still impacting industry
- More returning to offices, many staying home
- Economic Recession? Microsoft, Facebook, Apple, Amazon, Twitter, etc. laying off 1000s of employees

Latest Trends (January, 2023)

Software Development

- Low Code / No Code Development
- Cloud Computing still on the rise - AWS still leading
- Internet of Behavior (IoB) – next logical stage for Internet of Things (IoT): reading user behaviors from devices and tailoring next designs, advertising
- Progressive Web Apps (PWA) – future of mobile / web: replacing native apps, fast / responsive, feature-rich, installable, secure, cost-effective
- Web 3.0 – security / privacy, decentralized, scalable

Latest Trends (January, 2023)

Software Development, continued

- Blockchain Technology – securing data, reducing fraud, automating business processes
- Microservices – global adoption
- Infrastructure as Code (IaC)
- Kubernetes Adoption
- DevSecOps – utilizing automated testing and continuous integration
- AI / Deep Learning / ML – ChatGPT (OpenAI), etc.

Latest Trends (January, 2023)

Software Development, continued

- Primary Languages:
 - JavaScript (React over Angular)
 - Python
 - Java/JVM
 - C#/.NET
- Other Languages:
 - Rust (Mozilla, low-level systems programming, safe code)
 - Go (preferred by Google, 30 times faster than Python)
 - Swift (Apple)
 - TypeScript

Latest Trends (January, 2023)

Software Architecture

- “Data plus architecture” – software architecture adapting to consider data (think more reliance on AI / ML approaches)
- Data quality is just as important as code quality
- Software architecture is not just for software architects as a job – every engineer can participate
- Remote and hybrid work has ushered in increased asynchronous communication (Architecture Decision Records / ADRs)

Latest Trends (January, 2023)

Application Security

- Cloud Security + Application Security
- Tighter Security around Open-Source Software
- Code Factory Attack Surface will keep expanding
- Secure Software Compliance and SBOM
- Smarter Prioritization through Security Issue Context
- Culture Change: Executive Demand for Application Release Governance (Security Champions, Shift Left)

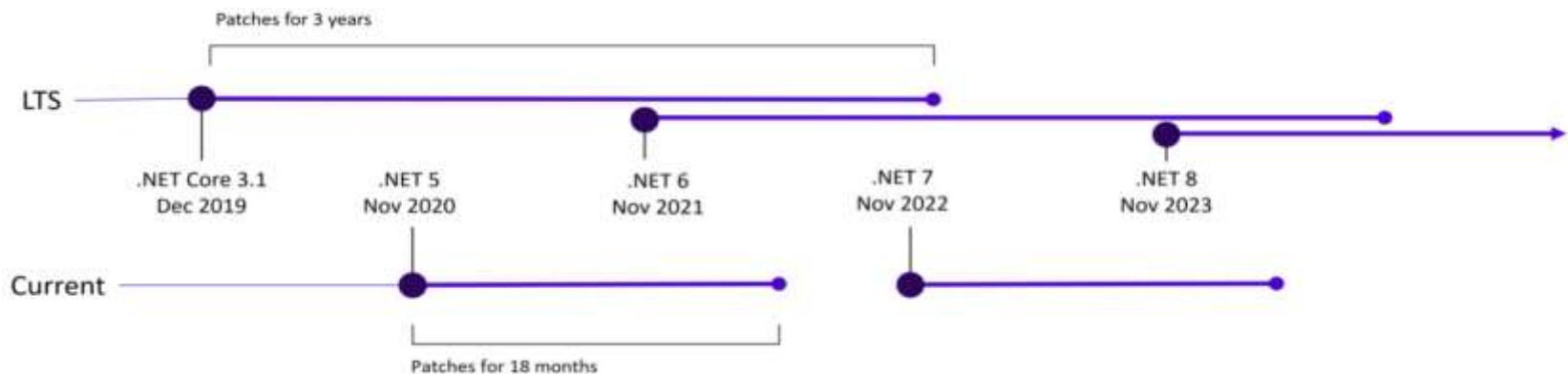
Software / Architecture / Application Security Trend References

- “Top 10 Software Development Trends For 2023”
 - <https://www.ailoitte.com/blog/software-development-trends/>
- “Software development trends that will define 2023”
 - <https://thinkmobiles.com/posts/2185/>
- “Software Architecture and Design InfoQ Trends Report—April 2022 (InfoQ)” (still early for 2023)
 - <https://www.infoq.com/articles/architecture-trends-2022>
- 2023 Predictions for Modern Application Security
 - <https://securityboulevard.com/2023/01/2023-predictions-for-modern-application-security/>

Latest Trends (January, 2023)

.NET 6 / 7 and beyond

- .NET 7 (STS) (November 8, 2022 / patched January 10, 2023 – End of life May 14, 2024)
- .NET 6 (LTS) (November 8, 2021 / patched January 10, 2023 – End of life November 12, 2024)
- ~~.NET 5 (End of life May 10, 2022)~~
- ~~.NET Core 3.1 (End of life December 13, 2022)~~



<https://dotnet.microsoft.com/platform/support/policy/dotnet-core>

Latest Trends (January, 2023)

Microsoft or *.NET* Related

- Microsoft Power Apps for low-code development platform
 - <https://powerapps.microsoft.com/en-us/low-code-platform/>
- “ChatGPT - Current state for .NET - and in general”
 - Blog post by Steven Giesel: <https://steven-giesel.com/blogPost/566d2090-eb8e-492d-ac99-fb6f14b6e042>
- “ASP.NET Core Blazor Progressive Web Application (PWA)”
 - A Blazor Progressive Web Application (PWA) is a single-page application (SPA) that uses modern browser APIs and capabilities to behave like a desktop app
 - Article on Microsoft site: <https://learn.microsoft.com/en-us/aspnet/core/blazor/progressive-web-app>

Questions?



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