



Modern Applications Guidebook

Streamlined. Scalable. Smart.

DevOps. Cloud. Advanced Analytics. Everyone seems to be talking about these buzz words. Lots of people seem to want them, but what do they really mean? What does digital transformation look like for your team and your applications? What's in it for you and your company, and will the benefits outweigh the risks and costs? This Modern Applications Guidebook answers these questions and more.

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Microsoft
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Gold Cloud Platform
Gold Data Analytics
Gold DevOps
Silver Application Development

Executive Overview

Software development trends have changed radically in the last decade. Widespread Agile adoption coupled with ever-growing Cloud capabilities has redefined how modern software is architected, built, and run. These changes have also revolutionized how teams do software development. Rapid agility, Cloud-enabled infrastructure, and Big Data have driven competition in every industry.

Northwest Cadence has deep knowledge and expertise in recent software trends and changes that define modern applications today. After all, we've been in the trenches alongside development teams for this entire journey. This modernization journey has included helping teams with many aspects: adopt Agile values and practices; integrate with QA and IT operations to become successful at true DevOps; lift-and-shift to the Cloud; architect new "born in the Cloud" modern apps; leverage machine learning to augment apps with Intelligence; and make sense of the increasing mass of data generated by their apps so they can derive insights that drive business forward faster and better.

Modern business runs on software. Whether your company generates revenue from software directly or indirectly, your ability to change the way your team develops, build Cloud-born apps, and drive deep insight through data analytics and machine learning, is your business advantage. We crafted this Modern Applications Guidebook to be your back-pocket resource as you navigate your modernization journey.

From Good to Great with Modern Software Applications



Discover what it takes to move your software application – and the people, processes, and culture surrounding it – from good to great.

Northwest Cadence helps companies find an edge, create momentum, and improve processes through business and software modernization to realize extraordinary results. The Microsoft Cloud (Azure), Visual Studio Team Services (VSTS), and the Cortana Intelligence Suite bring extraordinary capabilities to help solve common, persistent pain points in software delivery.

As you read ahead and discover the areas affected by the modern software movement, we hope this Guidebook will spark some recognition — *"Hey, we're not the only ones who struggle with this!"* — as well as your imagination — *"Just think what we could achieve if we could overcome that!"*

DevOps and the Microsoft Cloud

How do you identify, prioritize, and measure the value streams to your customers? How do you focus effort on the right things at the right time? How do you know what resources you'll need to provision to run your application? What about scaling up to meet demand?

Microsoft Azure allows you the power of elasticity and a pay-as-you-use cost model. Start small and dynamically scale up or down as and when you need to. Add to that powerful logging and metadata that provides insight into how your applications and infrastructure are performing – *as well as how your users are using your apps*.

Let's take a journey together. We'll start with how you can monitor your applications, using those insights to drive what you're focusing effort on. We'll then see how you can track development and testing. Next, we will explore how to blend Dev and Ops to make sure releases are non-events. Finally, we'll take data from your apps to drive intelligence and insights into your business.



DevOps and the Cloud means getting your great ideas into your users' hands faster than ever, while controlling costs and reducing the demands on operations and infrastructure.

Imagine

Whether you sell software directly or your software plays an essential supporting role, it's all the same: *ideas* make your business. Industry-leading ideas don't come from smoke-filled rooms anymore. Engaging directly with your customers might yield some system improvements, but even then it can be tough to get outside the box and become truly transformative.

The journey starts by knowing what's really going on with your applications. Visual Studio Team Services and Azure come together with Application Insights, a monitoring tool that goes far beyond simple logging. Application Insights provides a 360° view of your system: not only can you get performance and usage monitoring but with very little effort you can start monitoring *business telemetry*. This will empower you to make data-driven decisions to guide your resources wisely.

Northwest Cadence can help you identify and generate business metrics that can provide all levels of your company with truly astonishing insights to make your business more competitive.

Flow

Once Application Insights data has given you some ideas for new functionality or improving performance, you need to get through the development pipeline as quickly as possible. After all, it's *only valuable once it's in production*, and you don't want anything to get in the way.

Visual Studio Team Services gives teams the visibility and collaboration capabilities they need to keep *value* moving swiftly through your system. Track work at the team level, but also at higher levels to ensure enterprise alignment. Quickly recognize bottlenecks and eliminate impediments. Grab your teams' attention with real-time, easy-to-understand visual dashboards focused on their most important metrics.

Bringing DevOps and Azure together allows you to track and manage the flow of value, even across an enterprise at scale, in new and improved ways. Northwest Cadence thought leaders understand how to guide the transition from traditional forms of project management to agile visibility and transparency. It's a shift in perspective, and you'll see amazing results!

Development

Visual Studio ensures that your teams are incredibly productive as they code. Code Lens gives each method a heads-up-display that show references, author and recent changes, and even production system performance right in the IDE. Developers can utilize Diagnostic and Memory Analysis tools as they debug. Generate unit tests that cover all code paths using IntelliTest and perform historical debugging from production logs using IntelliTrace. Validate dependencies using Dependency Validation diagrams and analyze code on the fly with code analysis. And Visual Studio covers you for cross-platform and mobile app development too!

Northwest Cadence brings real-world dev experience to help you manage source control, branching, configuration, test automation, architecture, and more, all supported by Azure tools so your coders can get back to doing what they love—writing valuable code with a purpose.

Test

As your team's cadence increases, you'll quickly need the ability to run automated tests. Whether it's unit tests that run in a build that is automatically triggered by a commit, or automated functional tests in a QA environment, or UI tests or even load tests that run during automated releases, Visual Studio Team Services and Azure have you covered.

Azure gives you flexibility for DevTest infrastructure, allowing you to rapidly provision dev or test environments that look like production in just minutes. Working together with your configuration-as-code strategy and automated infrastructure, you can start turning around lightning-fast feedback between developers, testers, and operations to make your code production-ready faster (and better) than ever before – all the while minimizing cost.

Release Management supports multiple concurrent releases, or multiple versions in different stages of test, each with their own configurations. Testers can self-provision a personal, production-like environment any time. They can run automated or manual tests or just do exploratory testing without disrupting anyone else.

Cloud-based Load Tests allow you to test at scale without having to first provision infrastructure. Test your application from multiple global locations with thousands of virtual users without configuring a single machine!

Northwest Cadence understands that quality is even more critical as teams adopt Continuous Deployment. We know how to bring together dev, ops, and QA in a way that maximizes turnaround time without compromising on quality.

Build

Your developers are highly skilled, so you want them working on those business-critical features – not compiling code! Modern development teams rely on builds to automate compilation, packaging, and testing – providing fast feedback and catching small issues before they get bigger and harder to detect and fix.

With the plethora of platforms, languages, and tools available today, builds can be challenging. Team Build's cross-platform build agent and web-based authoring give you the ability to set up builds for virtually any app on any platform using any language.

Northwest Cadence has the expertise and experience to help your team automate their builds, freeing them up to do what's really important.

Deploy

Are you still doing major releases at night or on the weekend because you're not confident about what might go wrong? What happens when your user base goes global and there's no such thing as off-

hours anymore? What could you achieve if your deployments were totally automated, straightforward, predictable, and frequent? From rapid recovery to A/B testing to continuous micro-releases, simplifying and automating deployment gives you a solid foundation to ramp up the complexity and increase the value you can deliver without compromising on quality and stability.

What about test infrastructure? Azure enables you to rapidly provision (and tear down) test environments as and when you need them.

Whether you're releasing to Virtual Machines or Platform as a Service (PaaS), Release Management has you covered. Using the same cross-platform agent and web-based authoring as Team Build, you can create an automated deployment pipeline that automatically provisions infrastructure and services, deploys your apps, runs tests, and provides approval points along the way.

Releases don't just involve developers – operations needs to be involved too, since successful releases require infrastructure! Release Management gives you the tools you need to increase collaboration between development and operations to enable true Continuous Deployment.

Northwest Cadence understands how to pull together the right mix of tools and configurations to support your deployment needs, without over-complicating. We can help you create a pipeline that's faster *and* more sustainable.

Advanced Analytics and Your Application

Developers and business decision makers alike are starting to understand the power of advanced analytics. They know that amazing things can be done with their data but they don't know how to get started. At Northwest Cadence, we help our clients reach new heights by building intelligence into their applications and processes – and it all starts with data!



We know data and how to make it work for you. Northwest Cadence helps companies embed enterprise level intelligence into applications and processes.

Collect

With Azure Data Lake or Blob storage, all of your data can be captured for analysis for next to nothing. There is no excuse to throw away data anymore. And with tools like Azure Data Lake Analytics, HDInsight

(Hadoop in Azure), and SQL Data Warehouse you can scale quickly to reduce processing time while only paying for the compute you need. But that's only the start. Data comes in many forms.

Stream

For streaming data, Event Hubs are ideal. They can collect millions of asynchronous events per second. Connect that to a Stream Analytics job and you're set for near real-time SQL-like transforms, machine learning and JavaScript functions, and even live data visualizations. For those with Internet of Things (IoT) devices, Azure's IoT Hub supports all major protocols, per-device authentication, and bi-directional communication with billions of devices.

Predict

Data collection is all well and good but it's what you do with your data that counts! Azure Machine Learning Studio transforms your devs into data scientists! Take advantage of machine learning models built and used by Microsoft. By connecting drag-and-drop modules on a canvas you can get deep insights, from recommendation engines to text analytics. While you're at it, add innovation with Cortana Intelligence Suite. Just imagine what your app could do with real-time facial and emotional recognition paired with Bot Services!

Visualize

Of course, with all this data you need a way to understand it. Static reports are not enough anymore. Serious companies have sophisticated stories to tell with their data. They need to be able to slice and cross-filter reports; they need to see the data as it's being generated; they need the ability to perform ad-hoc natural language queries; they need to easily share the right reports with the right people. They need Power BI!

Search

Do your customers need to search within your apps? With just a few clicks you can provision an elastic-search based search engine in Azure and start indexing your assets. Azure handles the infrastructure and processing and you can use the REST-based API to provide instant and powerful search capabilities to any app.

Defining Modern Applications



Most likely you're doing some of this already. Looking forward, how can you embrace modern applications and create your next app to be streamlined, scalable, and smart?

Streamlined

High-performing teams push the boundaries of processes and tools. They've already fine-tuned communication and collaboration, built a solid foundation for quality, and removed wasteful delay and rework from the delivery cycle. They know continuous improvement is never finished, so they're looking around for the next opportunity to make their work even better. Visual Studio Team Services and Azure enable teams to streamline their day-to-day work to empower rapid innovation.

Whether you're a high-performing company already or you're trying to become one, the marriage of great people, proven practices, and cutting-edge tools is how you'll get there.

Scalable

As applications grow, so the demand on infrastructure grows. Azure allows companies to grow rapidly and cost-effectively.

However, beyond production scale there's the scale of the DevOps pipeline! Visual Studio Team Services and Azure helps teams to scale their processes, practices, and tools to keep pace with modern app development – whether it's automating testing or provisioning new environments on the fly.

Smart

Imagine you had the power to predict the future or to know what your customers are thinking and feeling. Many large companies already do this – they have Quants and data scientists working around the clock to make forecasts and recommendations. They have the capital and expertise to do things that many smaller companies can't afford. Until now.

For the first time, anyone can take advantage of the advanced analytics algorithms and tools Microsoft's data scientists have developed for internal use. See and do more than expected with Azure Cognitive Services, Cortana Intelligence Suite, Azure Machine Learning Studio, and Power BI.

How to Get Started: Modernizing Your Team



This is where the gears start cranking and the rubber hits the road. How do you get your team on board? Where do you get started? What best practices must you not overlook?

Identify, Prioritize, Engage

DevOps and Cloud are not only destinations: they are journeys. The first step in modernizing your team is to identify where your team can improve. Here are some common areas:

- Application Monitoring and business telemetry
- Work Management and Process Improvement
- Development Techniques and Source Control
- Architecting for the Cloud
- Continuous Integration, Continuous Testing, and Continuous Deployment
- Data Analytics

Northwest Cadence helps companies determine what your current state is and what areas can be improved upon to modernize your team – and your applications – to realize the most value.

We take an agile approach, working collaboratively with customers to determine which area will provide the greatest return on investment. That's where the fun begins! The Northwest Cadence can help in the way that's best for you. We are delighted to help inspire and architect, collaborate and guide, or step in for end-to-end assistance. Our desire is to be a part of the process that helps companies transform and modernize to reach the trifecta of modern applications: streamlined, scalable, and smart.

About Us

Improve Processes. Create Momentum. Find an Edge.



Northwest Cadence helps software teams - of all sizes and across all industries - modernize and transform to create applications that are streamlined, scalable, and smart.

Northwest Cadence has been working with companies to improve how they build and deliver software since 2007. With demonstrated expertise in the areas of data analytics, DevOps, Cloud Platform, and Application Development, Northwest Cadence has keen business and technical acumen that aligns

focus on business results, refines complex processes and supports people to drive business results, and improves overall software delivery to customers and stakeholders.

Contact the Northwest Cadence team | clientservices@nwcadence.com | 425.455.1155

A Collection of Resources

Favorite Resources



We've looked high and low for great resources. What we couldn't find, we built. Check out the list below for some of our favorites that will help you get started on your journey.

Upcoming Events | nwcadence.com/events

[Put Machine Learning to Work in Your Software](#) (live event)

[Bellevue, WA - March 30](#) | [Irvine, CA - April 26](#) | [Portland, OR - April 27](#)

Discover how to get started with advanced analytics through learning, discussion, and hands-on learning during this all day event. Gain a better understanding of advanced analytics and how they can be implemented in your business for immediate results and get practical experience with the machine learning foundations and data workflow.

[Successful Machine Learning for Dev Teams](#) (webcast) | March 9 | 9am PT

Learn how machine learning has the ability to make your applications more powerful without adding more work to your teams' backlog. From text analysis and product recommendations to an overall improved user experience, advanced analytics makes it easy for you to use data in ways it hasn't been used before. And you don't need data scientists to make it happen! Keep your applications innovative and competitive with successful machine learning.

[Machine Learning Models All Devs Should Know](#) (webcast) | April 6 | 9am PT

Designed exclusively for developers, join us for this down and dirty machine learning 101 webcast event. Hear how development teams are using advanced analytics to build smart applications and infuse intelligence into existing ones.

[Data Strategy Planning Workshop](#) | on-demand

Machine Learning, R server, and Power BI can have a significant impact on the way to use your existing data to make decisions and innovate. Discover how to use modern data analytics approaches and technologies to create a holistic data strategy.

[Modern DevOps Strategy Planning Workshop](#) | on-demand

The longest journey begins with the first step. Building a real and effective DevOps practice does not have to be intimidating. Discover the 7 pillars of an effective DevOps practice and find out which steps you can take, right now, to begin modernize DevOps in your organization.

[Blog Posts](#) | blog.nwcadence.com

[Evaluating Machine Learning Models](#) | *"You know the value of predictive analytics. You may have invested some time into implementing machine learning solutions for your organization. Are you getting the most out of your machine learning models? Do you know how to evaluate your machine learning solutions?"*

[Curious About Using Predictive Analytics for your Marketing Efforts?](#) | *"If you're not using predictive analytics to inform your marketing efforts, you need to check out our [Modern Marketing solution in the Power BI Partner Showcase!](#) There you will be able to interact with our Modern Marketing dashboard to uncover hidden insights."*

[Machine Learning for the Rest of Us](#) | *"Machine learning. Everyone is talking about it, but most have no idea what it is or why it is needed. Machine learning may seem like magic, but if one does not know where to start they can quickly get lost. All organizations have a need for predictive analytics..."*

[The Day of the Tester is Over – Long Live the Tester](#) | *"DevOps is radically changing the culture, tools and processes of most teams. Those that don't embrace this change are in danger of extinction. However, in order to deploy more frequently with better quality, teams must embrace continuous testing. But aren't testers part of Waterfall and two-year release cycles?..."*

[DevOps Maturity is One Step Away!](#) | *"When we work with teams on their DevOps practices, it's helpful to get a clear picture of where they are, and where they want to go. Understanding the level of a team's DevOps maturity is helpful for building out a clear, actionable plan. It's easy to paint an aspirational picture to get customers excited..."*



Other Great Resources

Microsoft Virtual Academy: [Azure Jumpstart](#) | View the latest capabilities with the newest Windows Azure release. This Jump Start focuses on key technical topics including Windows Azure Virtual Machines, Virtual Networks and PaaS implementation for IT Pros.

[Azure Blogs](#) | A variety of Azure experts have been blogging about Windows Azure lately. Read what they are saying, and get connected with the Azure community.

Azure Training Kit with [Azure Readiness Content](#) | The Azure Readiness Content provides a set of presentations and demos designed to help learn the latest Microsoft Azure features and services.

[Azure Websites](#) | Discover how Azure Websites provides world-class capabilities, empowering your Enterprise cloud with functionality designed for secure mission-critical applications.



Northwest Cadence is a longstanding Microsoft Gold Certified Partner with specialized expertise in Azure Cloud Platform, Data Analytics, and DevOps. We would love to hear from you! Contact the Northwest Cadence Team: 425.455.1155 | ClientServices@nwcadence.com | www.nwcadence.com
