The Digital Solutions Gallery

** November 8, 2022 **

“Reliability And Resiliency”
Engineering

The Ninth In Our 2022 Ten-Event Series – “Developing Our Potential For 2025”
Together Again!!!

Sincere Thanks To Nationwide Insurance!!!
And Especially To Our Host...

Mr. Guru Vasudeva
SVP & CIO
Infrastructure & Operations
Nationwide Insurance
Thanks Also To Our Sponsoring Partners For This Session
“Now is the time for business leaders to plan for the future, ...because it’s already here!”

- Kirt Walker; CEO of Nationwide Insurance (Forbes; 4/26/2021)
“83% of consumers refuse to do business with brands they do not trust. To build that trust, brands must focus on exhibiting transparency, warmth, honesty, and reliability.”

- Gartner

Reliability Is A Prerequisite For Trust.
We Do Have Formal Frameworks To Guide Our Pursuit Of Reliability

One Example....

“The Trust Services Framework”

- Framework is designed to support systems reliability
- Developed jointly by auditors, the AICPA and the Canadian Institute of Chartered Accountants (CICA)
- Outlines the structure of five basic principles needed by us to help assure and support systems reliability, starting with security as its true foundation
But Sometimes Those Foundations Can Be Compromised.

Rapid Advances In Our Environment (Of All Types) Can Turn Into Threats To Our Reliability.
And When Our Foundation Is Compromised, The Pillars Supporting That Reliability Are Next.
Resiliency Is Our Needed Response To Those Threats.

Resiliency Is About Overcoming The Unexpected.

Reliability Cannot Be Sustained Without Resiliency.
That Brings Us To The Two Big Questions On The Minds Of All Senior IT Leaders...

1. **How** Can I Achieve My Organization’s Targeted Value Outcomes?

2. **How** Can I -- **At The Same Time** – Build In Vital Assurances Of Both Reliability And Ongoing Resiliency Within My Environment?
We Are Going To Spend Some Time On That Second Question This Morning.
Today As We Discuss Building In Both Reliability And Resilience, Be Listening For Key Considerations.

They Can Help Guide Your Thinking And Your Ultimate Response.
We have all seen great jugglers; described as people “constantly throwing and catching things in one continuous controlled motion”. Successful juggling requires great skill, superb concentration and effective peripheral vision regarding those many moving parts. Yet its level of associated success and direct accountability always lie at the center of the action, not on the edges. Does this sound a lot like your world? This is certainly true regarding today’s digital leaders.

Today many organizations are coordinating modern moving parts like the power of the cloud, “as a service” platforms and enterprise level applications. Accordingly, many of those providing partners also promise to deliver on their associated responsibilities. That said, though, in all cases the overall accountability for that successful “juggling” always remains with the one at the center coordinating that controlled motion, not with the providers on the edges.

Join futurist **Thornton May** and a host of noted executives for a discussion on how to effectively engineer reliability and resiliency among those many moving parts.
As Always, Our Session Objectives

1. **Learn Stuff!!!** Listen For Personally Relate-able Examples Of What Has Just Been Described…Both Today And In Our Preceding Sessions

2. **Look For Opportunities To Apply And Leverage** Those Examples And Learnings Within Your Own Settings

3. **Do Stuff!!!** Make The Personal Commitment To Follow Through And Act On What You Have Learned

4. **Share Your Stories** With The Rest Of Us (…Both Highs and Lows…) So That We Can All Continue To Learn Together
Introducing Our Program Co-Founder and Noted IT Futurist.....
“Reliability & Resiliency Engineering”

8 NOV 2022
Thornton May
may.807@osu.edu
Reliability & Resilience
Don’t Just “Happen”
Decisions Have to Be Made

Repair or Replace?
Architecture
Builder/Developer
Project Timeline
Budget
Award-winning, large company CIOs generally agree that digital mastery depends on competence in five foundational areas:

Infrastructure, Telecommunications, Information Security & Privacy, Enterprise Data Management, & IT Governance
Reliability & Resilience Depends on Infrastructure

Infrastructure has been an issue that has plagued mankind for centuries.
What “Grade” Would You Give Your In-Place IT Infrastructure?
The General Consensus is that IT Infrastructures are Not Where They Should Be
Before We Start...

Modernizing, Optimizing

Removing, Renewing, Renovating, Replacing, Procuring...
Michelangelo, *The Last Judgement* between 1535 & 1541 [39 feet by 45 feet]
Michelangelo, *Creation of Adam* 1508-1512
[9’ 2” x 18’ 8”]
Would Someone Like to Share...

How they explain “IT Infrastructure” to Their Board of Directors & Senior Management
Secure Your Cloud. Identity-First.
Comprehensive cloud security platform for AWS, Azure and GCP

Ermetic is a comprehensive cloud security platform for AWS, Azure and GCP that enables you to proactively reduce your attack surface, detect threats and reduce your blast radius in case of a breach. Ermetic’s holistic cloud security solution enables comprehensive risk assessment across the entire security stack – from full asset discovery and deep risk visualization, prioritization and guided remediation to anomaly detection and compliance audit. Visit us at https://ermetic.com/ and follow us on LinkedIn, Twitter and Facebook.
And Now, Let’s Introduce

Our Host & Morning Keynote Presenter

Mr. Guru Vasudeva
Senior Vice President and CIO
Nationwide Insurance
### Nationwide by the Numbers

<table>
<thead>
<tr>
<th>Claims and benefits paid to members:</th>
<th>Total sales:</th>
<th>Net operating income:</th>
</tr>
</thead>
<tbody>
<tr>
<td>$18.4 billion</td>
<td>$52.9 billion</td>
<td>$2.8 billion</td>
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</table>

<table>
<thead>
<tr>
<th>Total investment portfolio:</th>
<th>Total assets:</th>
<th>Total adjusted capital:</th>
</tr>
</thead>
<tbody>
<tr>
<td>$130.8 billion</td>
<td>$295.7 billion</td>
<td>$21.9 billion</td>
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We are a **FORTUNE 100** company

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**A+**

*AM Best*

- Received: 10/17/22; Affirmed: 12/22/21
- The second highest of 16 ratings: Insurance companies assigned an A+ rating. In their opinion, have an excellent ability to meet their ongoing obligations to policyholders. The outlook for this rating is stable.

**A1**

*Moody’s*

- Received: 3/10/20; Affirmed: 5/20/20
- The fifth highest of 21 ratings: Insurance companies rated A1 offer good financial security. However, some factors may be present which suggest a susceptibility to impairment sometime in the future. The outlook for this rating is stable.

**A+**

*Standard & Poor’s*

- Received: 12/22/08; Affirmed: 5/7/21
- The fifth highest of 21 ratings: An issuer rated A+ has strong financial security characteristics, but is somewhat more susceptible to being affected by adverse business conditions than are issuers with higher ratings. The outlook for this rating is stable.
I&O by the Numbers

- **$343M** Budget
- **350,000+** TSD cases resolved
- **9,000** Databases
- **140M** Emails blocked (spam and malware)
- **1,000+** Infrastructure Workforce
  - predominantly in-house
- **26 PB** Storage
- **33M** Production jobs executed (Batch 24/7)
- **160M** Inbound emails monthly
- **1,000** Physical servers
Reliability Engineering Program

- Zero business impact from change
- Increase monitoring coverage
- Reduce false incidents
- Single point of failure – analysis
- Single point of failure – testing
- Blameless root cause analysis
- Timely elimination of known errors
- Site reliability engineering automation
- Daily health checks of heartbeat services
Eliminate Single Point of Failure

Internet

Data Center 1

Data Center 2

Public Cloud Region 1

Public Cloud Region 2
Increase Monitoring Coverage

Average Time to Detect Per Incident Outages

Minutes

Jan 21  Jan 22
Reduce False Incidents

Number of False Starts

Jan 2020
Feb 2022
Blameless Root Cause Analysis

- 195 root cause analysis (RCA) sessions facilitated by problem management team in the last year.
- 343 problem tickets opened by problem management team.
- 492 known errors identified, including 104 root cause known errors and 388 contributing factor known errors.
North Star: Reduce Business Impact
Resilience:
The ability to recover quickly from difficulties; Spring back into shape

– Google
Outage Timeline

- Thurs, Sept 22
- Fri, Sept 23
- Sat, Sept 24
- Sun, Sept 25
- Mon, Sept 26
- Tues, Sept 27
- Wed, Sept 28

- Active Directory Slowdown
- MFA – Intermittent Failures
- WAF Changes
Three Complex Issues

- Active Directory Slowdown
- MFA – Intermittent Failures
- WAF Changes
Active Directory Response Time

- Problem Resolution
  - Sept 23 - Sept 25
  - Capacity Add & Optimizations

- X-axis: September 19 to September 29
- Y-axis: Seconds
New Focus Areas

• Own your dependencies
• Keep your dependencies close
• Improve error codes
• Enhance monitoring
• Zero business impact from change
Govern and Secure
Mission-critical Applications,
Vendor/Contractor Access, and
Infrastructure Access

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Bart Murphy
Chief Information Officer
OCLC
STAFFORD TECHNOLOGY

SPECIALIZED IT STAFFING
The right people, the right way. Right now.

THE STAFFORD PROVEN PROCESS

Understand The Need
Verify the requirement
Define the why behind the what
Navigate the details

Leverage Our Network
Solid relationships
Deep bunch of specialists
Web of recruiting resources

Match Your Why
Present qualified candidates
who fit your culture
Confirm the commitment

Consistent Communication
Throughout the process
and after the placement
Ongoing quality check-up
Continuous feedback loop

Provide technology solutions through people

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CONTACT US AT info@stafford-technology.com or call 614-973-6027

Lisa K. Kagy (She, Her, Hers)
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614-634-2268 – (Mobile: call/text)
A Drive Into the Future

Charles W. Ash
Chief Information Officer
Ohio Department of Transportation
“How can you build a comprehensive product/service/data management system when the organization does not own all of the necessary physical and/or digital infrastructure?”

Charles W. Ash
Chief Information Officer
Ohio Department of Transportation

A Drive Into the Future - YouTube
Cloud migration generates a number of new security gaps.

What are some of those gaps?

What are the strategies used to minimize the risks associated with cloud migrations?

What are the security considerations & risks when integrating 3rd party services into your public cloud?
What are challenges in trying to obtain and maintain a least privilege approach in the public cloud?

What are some of the ways organizations can facilitate these risks?

**3rd Party Audits**

What are some of the questions you should be asking of your audit partners what can be done to minimize the impact of those audits on your already stretched-razor-thin cloud ops staff?

Garrett Bechler
Senior Director
Global Sales Engineering
Ermetic
How is cloud computing impacting infrastructure, security, or functional business imperatives?

Do leaders realize the breadth of cloud computing across architecture, security, disaster recovery, support, and more?

Or is this more generally associated with a priority that on-prem costs can be eliminated or significantly reduced?
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Participant Practicum
Site Reliability Engineering is both a critical IT and business function, to keep important, customer and revenue-critical systems up and running despite a variety of challenges such as weather, cyber attacks, and upgrade/implementation/configuration errors.

Maintaining the availability, latency, performance, and capacity of these systems is what enables businesses to serve their customers effectively.

There are many well-published best practices for reliability engineering including the SRE model pioneered by Google.

However, scaling and sustaining these across 100s and 1000s of applications and infrastructure teams is a challenge for many large organizations.
As we saw in Guru’s presentation, Nationwide has made some great progress.

**The Practicum Challenge:**

What best practices for driving and sustaining both operational and cultural change across 100s of applications and teams (both business and IT) has your organization found to be effective?

What more should the IT organizations that own this accountability be doing to ensure success?

Use the next 10 minutes to work together as a team and then we’ll start the report-outs.

But there's still opportunity for improvement!
Closing Remarks

Myths
Mental Models
Re-framings
“Kremlinologies”
How much time is spent thinking about I&O?

How much time is spent
Running the business/Growing the business

Cost center/profit engine/Strategic Resource
Outage versus Outrage?
Both Kakao and WhatsApp had outages this week. South Korea runs on Kakao, and the rest of the world except for China, Japan and the USA runs on WhatsApp.

The Kakao CEO resigned, whereas no-one expects that at Meta: an interesting contrast in cultural attitudes, perhaps.

If KTLO wasn’t happening, then we were incompetent.
If KTLO was happening, then we were too expensive.
“You can’t use old maps to explore a new world.”

Albert Einstein
What Happens to I&O Investment in an Inflationary/Recessionary Macro-Environment?

What Should We Be Doing about the I&O Skill Set Mis-Match?

Right to Repair/What about Right to Understand? Mandate to Explain?
"You Are Not Expected to Understand This": How 26 Lines of Code Changed the World

Knowledge Responsibilities
It was a staple of intelligence gathering during the Cold War Era: Look at the pictures of the officials standing atop Lenin’s Tomb at this year’s May Day Parade. Compare with those pictured last year. Since the Communists seldom issued press releases on these subjects, the photos were one way to gauge who had moved closer to the center of power and who had been moved further away, perhaps to Siberia.
Interactions between customers and North American companies are now 65% digital, compared to 41% pre-pandemic.

Customer Connection Depends on I&O