Midwest Db2 User Group

Unified DevOps Toolchains

Steve Solomon Lead Product Manager – Db2



March 8, 2022

Please use the Questions/Chat

Let's be interactive and have some fun.

Have you ever used one of my former or current products?

Please post the name of the product in the Questions/Chat....









Please share the product name in the chat

Serena Software /Micro Focus

- ChangeMan ZMF
- ChangeMan M+R
- ChangeMan ZDD
- ChangeMan SSM
- StarTool FDM

CA Technologies

/Broadcom

- CA Easytrieve
- CA Harvest SCM
- CA Panvalet
- CA Librarian
- CA Gen
- CA 2E or CA Plex
- CA Telon

BMC Software

- BMC AMI Catalog Manager for Db2
- BMC AMI Change Manager for Db2
- BMC AMI Apptune for Db2
- BMC SQL Explorer for Db2
- BMC AMI Command Center for Db2
- BMC AMI DevOps for Db2
- BMC AMI SQL Assurance for Db2
- BMC DASD Manager for DB2
- BMC Opertune for DB2

BMC 2021 Mainframe Survey – 22 SEP 2021







92% of respondents see the mainframe long-term platform for growth

79% of companies that adopt DevOps see ROI in one year or less

72% of extra-large shops have more than 50% of their data on the mainframe

The mainframe isn't going anywhere, and the 16th Annual Mainframe Survey of more than 1,000 respondents found that enterprises are leaning into ways to adapt, automate, and secure the platform to succeed in today's economy.

2021 BMC Mainframe Survey Mainframe Database Growth



have reported an increased rate of database object change

2020: 53%



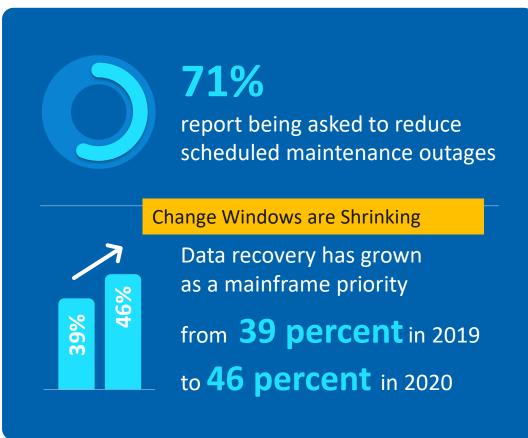
have reported an increased rate of application change

2020: 44%



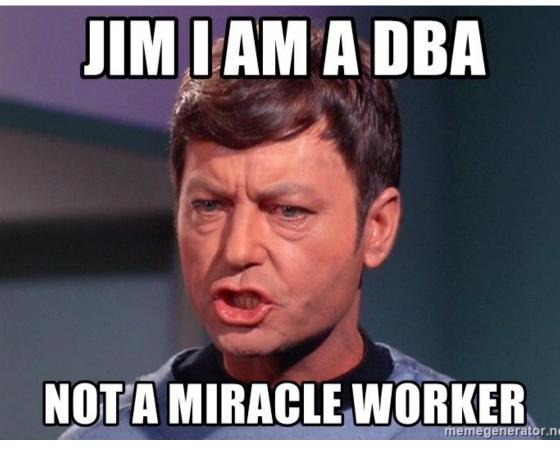
report that the number of databases in their mainframe environment has increased in the past year

2020: 44%



Link: www.bmc.com/info/mainframe-survey.html

But are you adding DBAs?



Dr. Leonard McCoy, Circa 1967

SELECT * from biggest_table_I_can_find; SELECT * from biggest_table_I_can_find;

R

Bad SOI

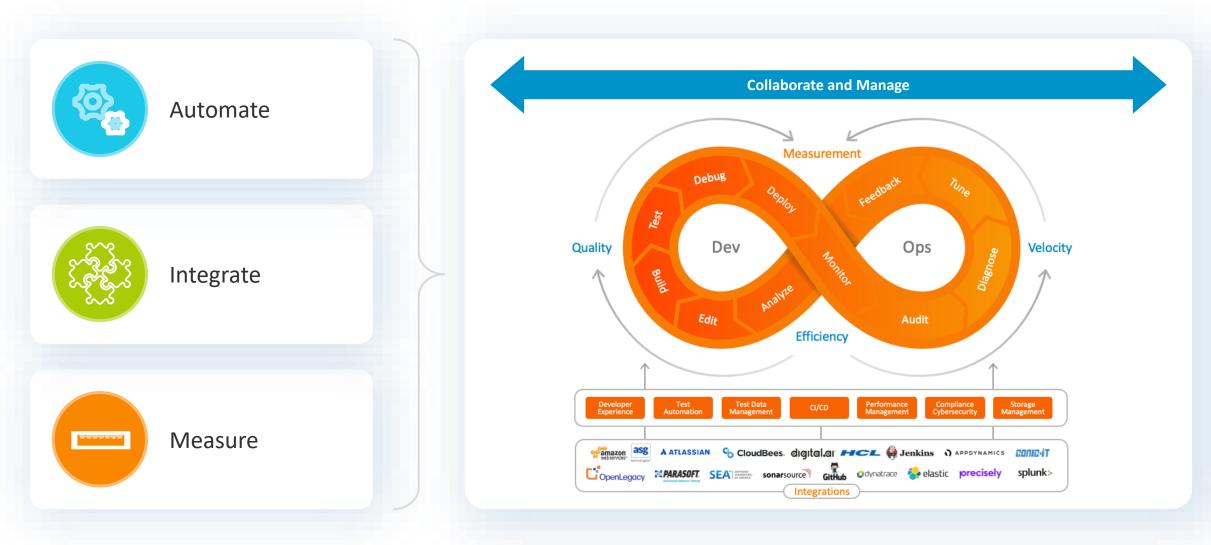




- 1. Unnecessary I/O
- 2. Increased Network traffic
- 3. More Application memory
- 4. Depends on Column Order
- 5. Fragile Views
- 6. Conflict in JOIN Query
- 7. Risky while copying data

Mainstream the Mainframe

Enabling DevOps Across the Enterprise

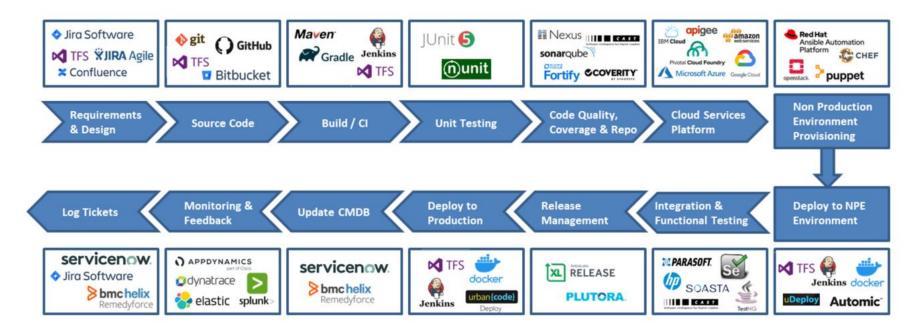


DevOps Toolchain

Things to remember about DevOps

- The goal is continuous improvement
- You can't buy DevOps
- Tool adoption happens in stages

Your DevOps Engineering team will have a diagram that is unique to your company and maybe unique by team

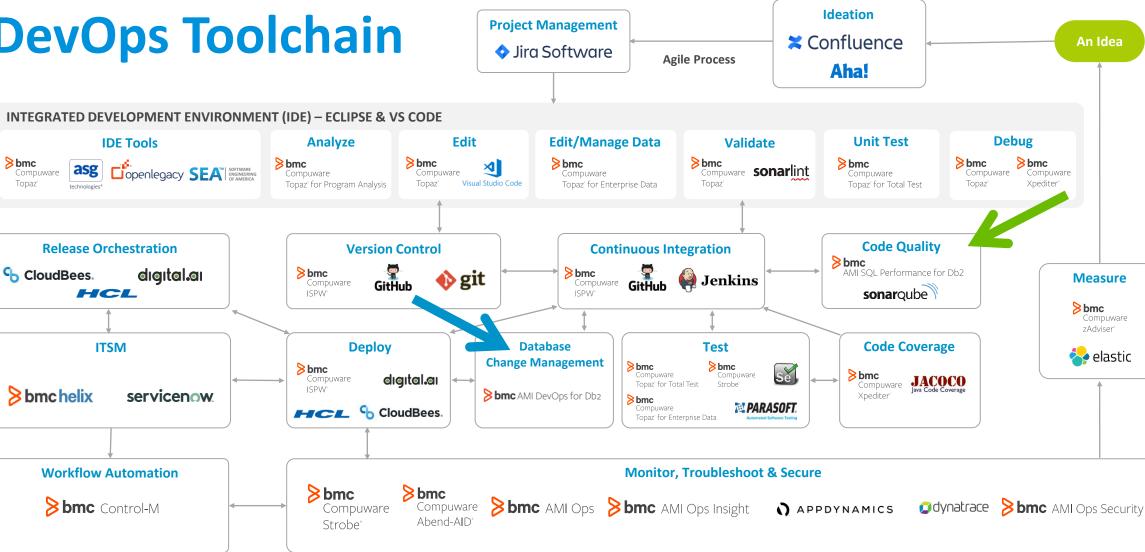


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Digial.ai VersionOne 11 En PV	Targetprocess 12 En Br	En Configuration Automation				Issue Tracking/ITSM Release Management			Value Stream Management A S E			Azure DevOps Pipelines 13 En	OWASP ZAP 14 En Sni	Digital.ai App Protect 15 En	Digital.ai Release 16 En Cfr	AWS CodePipeline 17 En Brl	GitHub 18 C GIS
Planview 19 Pd In	Broadcom Rally 20 En Dd	21 En Ja	22 En	23 En	24 En Mt	₂₅ ₀₅ Rha	26 05 Ht	27 0s Dk	28 En	29 En	30 En	Digital.ai Deploy 31 En Ud	Sonatype Nexus IQ 32 Os Ck	Aqua Security 33 Os	CloudBees Flow 34 En Ur	BMC RLM 35 En	GitLab SCM 36 C Abb
Instana 37 En	Datadog	JFrog Artifactory	AWS	Slack 41 En	Microsoft Teams	Red Hat Ansible 43 Os	HashiCorp Terraform	Docker	Red Hat OpenShift 46 En	Liquibase	Delphix 48 Os	UrbanCode Deploy	CyberArk Conjur	HashiCorp Vault 51 Os	UrbanCode Release 52 En	AWS Lambda	Atlassian Bitbucket 54 E
Splunk	Ad AppDynamics	Sonatype Nexus 57 Fm	Az Azure	Gc Google Cloud 59 En	AC Atlassian Confluence 60 En	Ch Chef	Acf AWS Cloud Formation 62 Os	Ku Kubernetes	Ak Amazon EKS 64 En	De Docker Enterprise	Id IDERA 66 Fm	Ha Harness 67 Os	VC Veracode 68 En	Sr SonarQube	Ff Micro Focus Fortify SCA 70 En	Azure Functions 71 Fm	Ci Compuware ISPW 72 C
Dt Dynatrace	Nr New Relic	Dh Docker Hub	Np	IC IBM Cloud	So Stack Overflow	Pu Puppet	HC HashiCorp Consul	Ae Amazon ECS	Azk Azure AKS	Ra Rancher	Qt Guest Toad	Sk _{Spinnaker}	Od Octopus Deploy	Sb Synopsys Black Duck	Cx Checkmarx SAST	He Heroku	Sv Subversion
73 Os Gr Grafana	74 Os El Elastic ELK Stack	75 Os Yn ^{Yarn}	NU NuGet	77 Os OS OpenStack	78 Os Mm Mattermost	79 Os Sa Salt	80 Os Hg HashiCorp Vagrant	BI Os Hp HashiCorp Packer	82 En Gk Google GKE	83 Os Hm Helm	84 En Db DBmaestro	85 En Cfd CloudBees Flow	86 En Acd AWS CodeDeploy	87 Os Sn Snort	88 Fm Pbs PortSwigger Burp Suite	89 En Gf Google Firebase	90 C Cf Cloud Foundry

The Periodic Table of DevOps Tools (V4.1)



Mainframe-inclusive DevOps Toolchain



Database DevOps Capability Model

Model includes people/culture,

process/structures, and objects/technology

Level 5

Performance Level 3 **DevOps** Identify and Level 2 remediate poor Recover Integrate Level 1 application software and design during **DB Tools** Quickly restore database development. database Individual changes into DBA specific changes and an automated designed to Nonspecific recover critical CI/CD pipeline. manipulate DBA tools like data. database SPUFI, DLTO, objects and and locally data. developed tools.

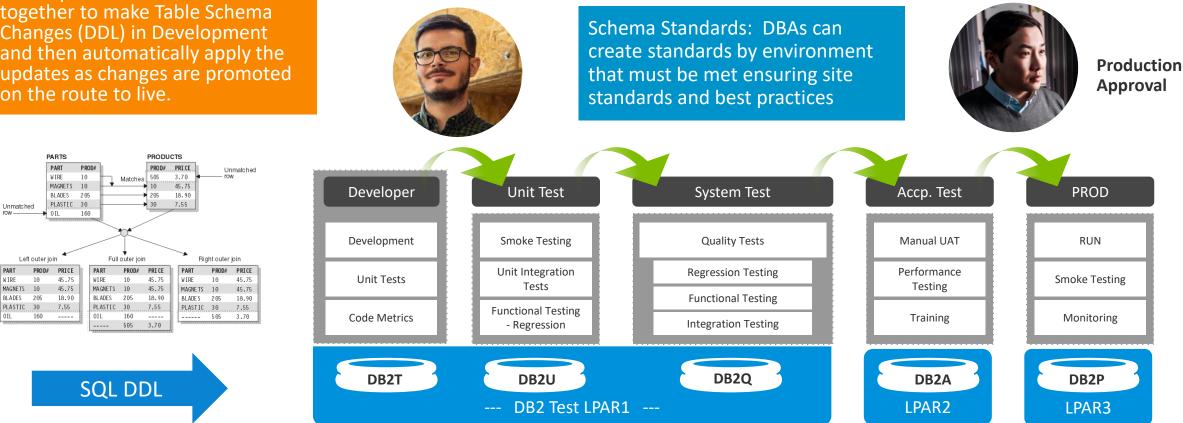
Significant Quality, Velocity, and Efficiency gains at each step

Level 4

Database DevOps

Developers and DBAs work together to make Table Schema Changes (DDL) in Development and then automatically apply the updates as changes are promoted on the route to live.

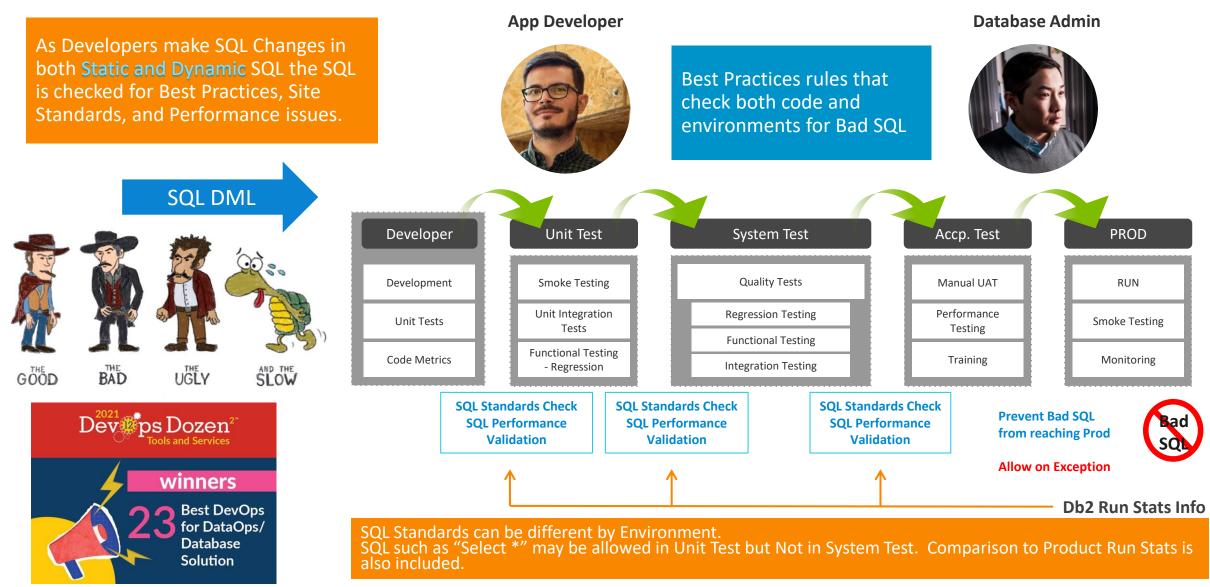
App Developer



Automate DDL updates from Dev to Test to Prod. Each Production Environment typically has 7 to 10 Dev and Test Environments.

Database Admin

SQL Performance



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How Zowe fit into DevOps

Zowe



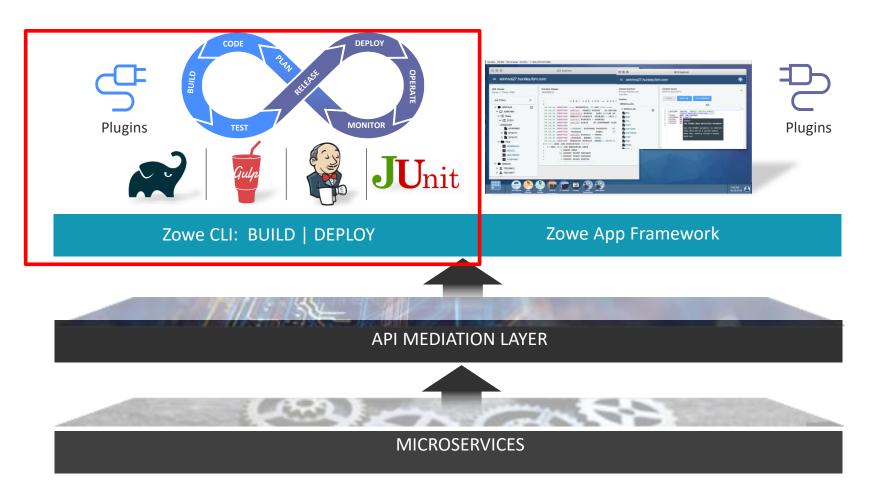
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Zowe framework and ecosystem at a glance

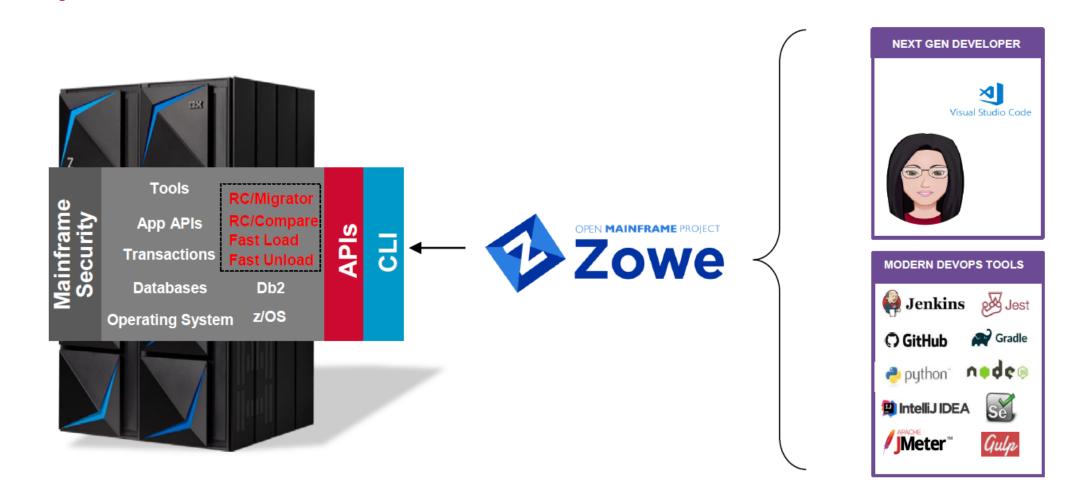
Core Zowe includes API Mediation Layer, Command Line Interface (CLI), and Web User Interface

Vendors can build 'Zowe Compliant' plugins that will leverage this framework.





Broadcom Database DevOps



Please check with your Broadcom contacts as presenter is not an authority on Broadcom software products.

What about the Ops in DevOps?

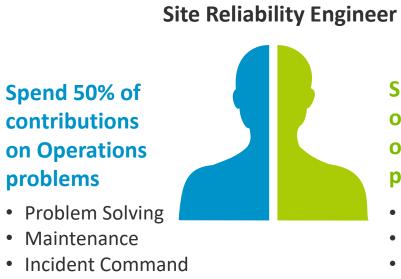
Site Reliability Engineering SRE



What Do SREs Do?

Keep Customers Happy





• SLI / SLO / SLA

Spend 50% of contributions on Engineering problems

- Automation
- Key integrations
- Observability
- Post Mortems

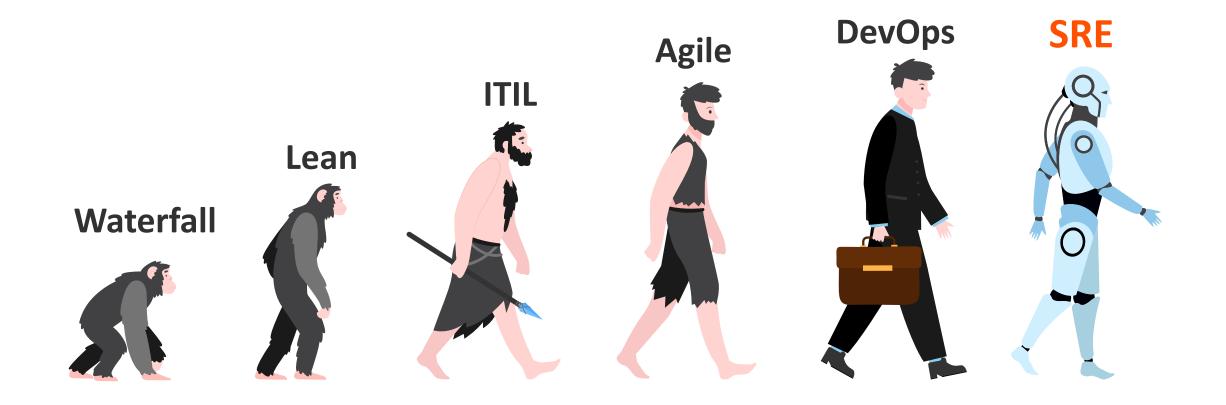
Eliminate Toil



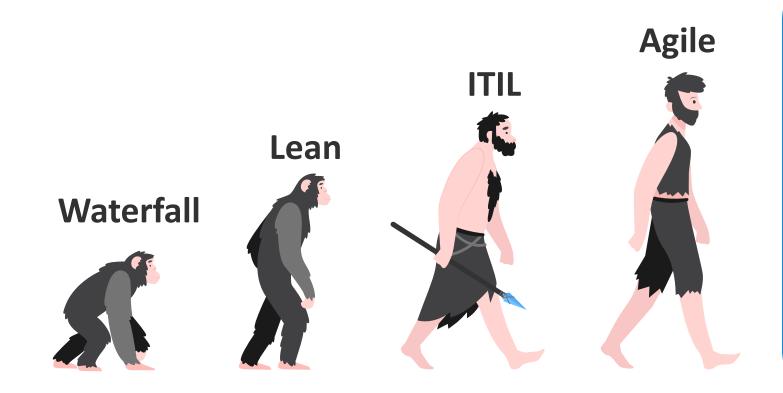
SRE is what you get when you treat operations like an engineering problem

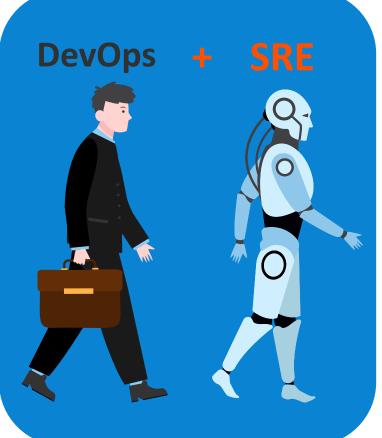
- Google

The Promise of SRE



The Reality of DevOps and SRE





Integrated Change, Configuration, Release Management, and Operations Including Performance

Intelligent Automation is a SRE's friend!

Ai & Automation

APPROACH

BREAKDOWN AUTOMATION SILOS

- **Determine** real-time probable cause reducing event noise
- Request Automation
- Run available and recommended Automation
- Auto-remediate many issues and drive faster MTTR

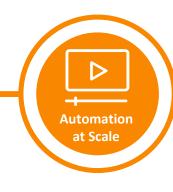
Situation to

Remediation

LEARN, OBSERVE & RECOMMEND

- Learn from past executions and recommends the best possible action.
- Uses reinforcement learning by taking user feedback.
- **Proactively recommends** the appropriate automation for incoming events





SCALE & RE-USE AUTOMATION

- Provide Remediation
 Recommendations
- Enable re-use of automation to different stakeholders

Three Keys to Including Mainframe in SRE

Visibility, Monitoring, and Observability



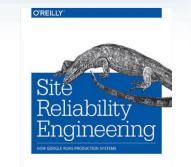
User agreement that highlights your product reliability Laterators SLA Customer Experience SLO SLO Data-driven Decision Making Phase Comprising of Management, SREs and Developers to Build SMART SLOs

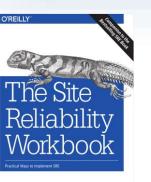
O'REILLY'

SLI, SLO, SLA

Eliminate Toil







Building Secure & Reliable Systems SRE and Security Best Practices

Read online at https://sre.google

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Edited by Betsy Beyer, Chris Jones, Jennifer Petoff & Niall Richard Murphy Edited by Betsy Beyer Niall Richard Murphy, David K. Rensin, Kent Kawahara & Stephen Thorne

Paul Blankinship, Piotr Lewandowski, Ana Oprea & Adam Stubblefield But wait there's more

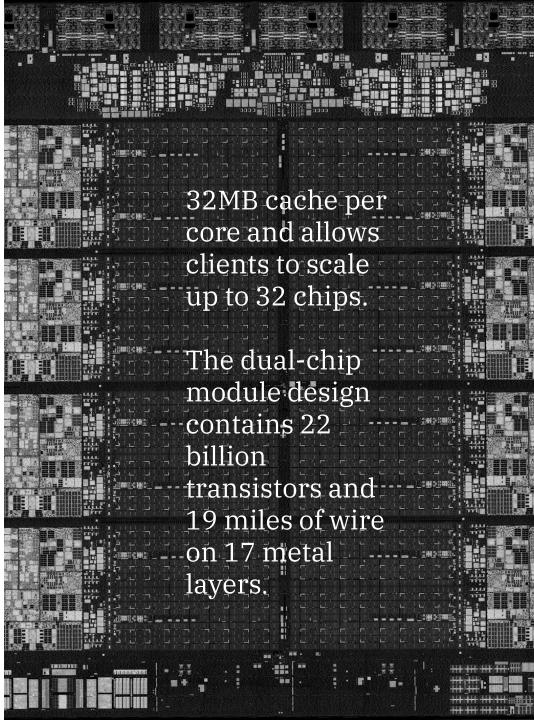
IBM Z 2022 will be a great year

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Coming in 2022

- New IBM Z Mainframe code name Artemis
- Brand New IBM Z mainframe chip designed code name Telum ======→
- New Version of Db2 code name Apollo
 - You're going to love it, we already do
- New versions of CICS and IMS
- New releases of BMC Db2 Software

If you are a BMC Db2 customer we can help you with your upgrade plans.







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