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Public

FMCRT – EMEA Digital Transformation

# Efficiency Unleashed Scaling KNIME Adoption at Citi

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# Citi: One of the World's Most Global Banks

## Our Global Impact:

### Nearly \$5 trillion

#### financial flows

Our global network allows us to move the equivalent of Germany's GDP each day across borders, currencies and asset classes.

### \$1+ trillion

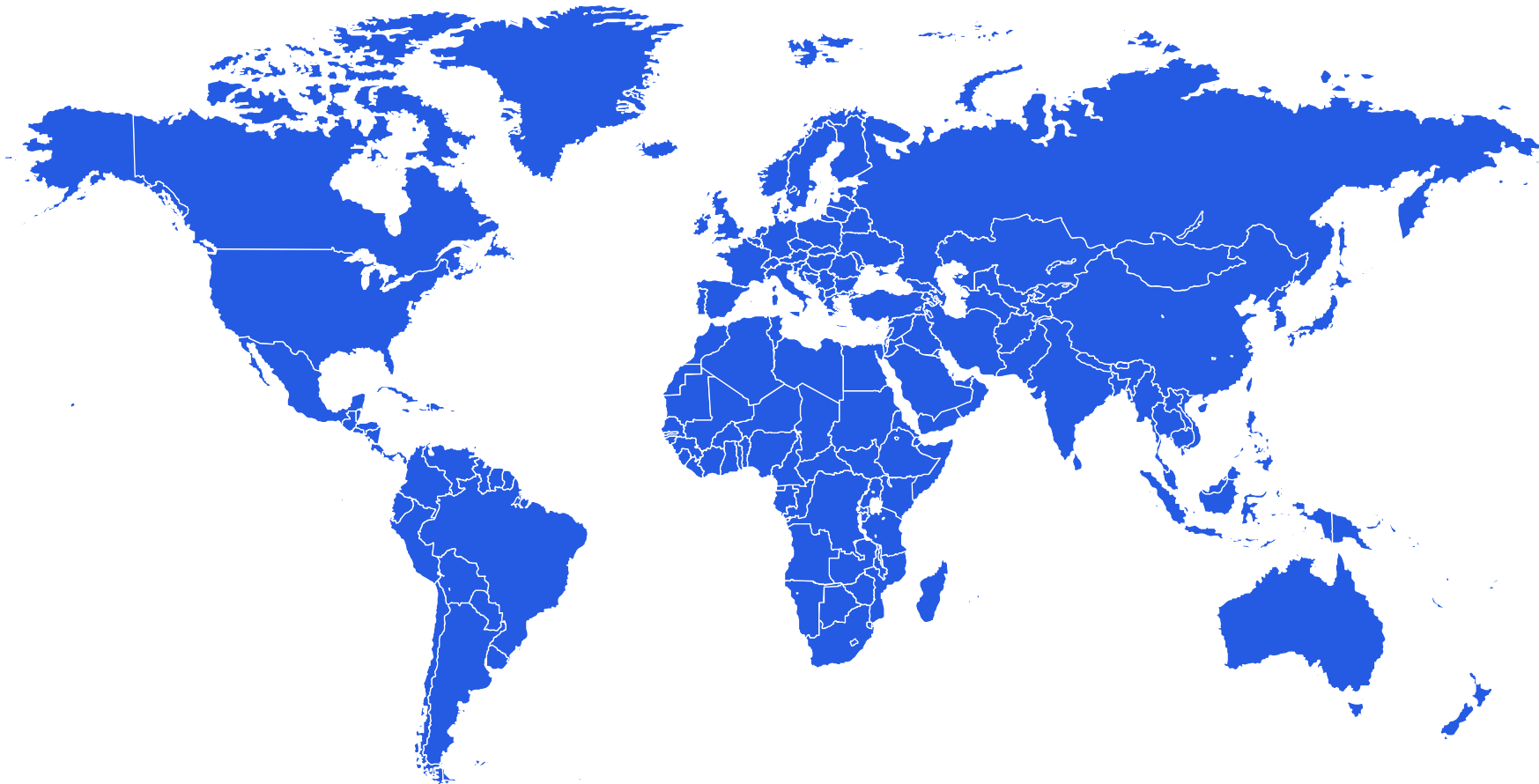
#### committed to ESG

We believe in playing a leading role in solving increasingly interconnected societal challenges. We set goals and we hold ourselves accountable to reaching them.

### 19,000+

#### institutional clients

Our clients include 90% of global Fortune 500 companies who are served through our institutional banking franchise.



**~229,000**

employees  
working worldwide

**180**

countries  
Where we serve  
our clients

**90+**

countries  
with on-the-ground  
presence

**77**

countries  
with trading  
floor

# Citi: One of the World's Most Global Banks – Global Footprint



•Tier 1: 18  
Tier 2: 15

•Tier 1: 2,500+ Direct Staff supporting cross-border work and / or mono-line multi-function sites  
Tier 2: 700 - 2,499 Direct Staff supporting cross-border work and / or mono-line multi-function sites

# Citi Hungary Overview

1985\*

Timeline

- Citi franchise in Hungary since 1985
- CSC Budapest in Hungary since 2005

3,000+\*

Colleagues

60%\*

Senior roles

46%\*

Gender Diversity

2

Offices

- Promenade Gardens
- Arena Corner  
with Technology Lab





# EMEA GFT Digital Transformation Team

## Who are we?

**James Whelan**

GFT Digital Transformation & EUC Remediation lead, Application Management



65% of staff are Developers 15% QA & 20% Other

Multinational Workforce

Strong connection with CSC EMEA & Global teams for the purpose of EUC remediation

## Past / Present / Future

Highlights from 2020



Implemented KNIME Infrastructure in CSC Finance EMEA and ASPAC in support EUC Remediation



Remediation of 000s EUCs across CSC Finance & Non CSC (Treasury, Risk, Product Control)



Supporting Financial Reporting Implementations and Changes

Strategic focus for 2021



Act as COE in support of implementation of KNIME Infrastructure for CSC Finance & Non CSC Globally



Remediation of 000s EUCs across CSC and Non EMEA



BA and Product Assurance to implement Process improvement in support of Regulatory Reporting

Future Growth opportunities



Participate in Graduate / Internship programs to build pipeline for future analysts



Continue to develop our teams and tools to further enhance our footprint in being recognised as a leader in EUC Remediation & Reporting automation

## What do we do and who do we support?

### CSC Finance EMEA

- Integration with Strategic Financial Reporting Tools
- Component Development
- CSC Workflow Development
- CSC Workflow Development Support
- WF Conversion & Migration

### Centre of Excellence (COE)

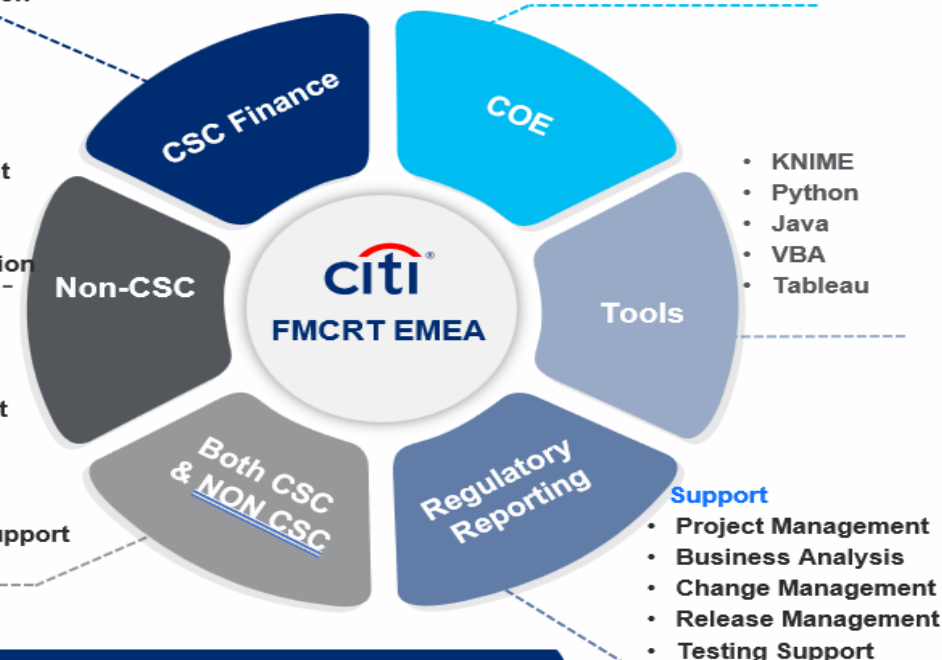
- Node Development
- Innovation
- Infra Setup & Configuration
- Version Control
- Tech Mandates

### NON-CSC Finance

- Component Development
- Workflow Development
- Application Support
- WF Conversion & Migration

### CSC & NON-CSC Finance

- Component Development
- Application Support
- Incident Management
- CM/RLM
- Vendor Management / Support
- Production Support



## Collaboration



50+ Power Users  
000s+ Consumers  
KNIME DT 5000+ Installs



All Development team certified in KNIME Application Development

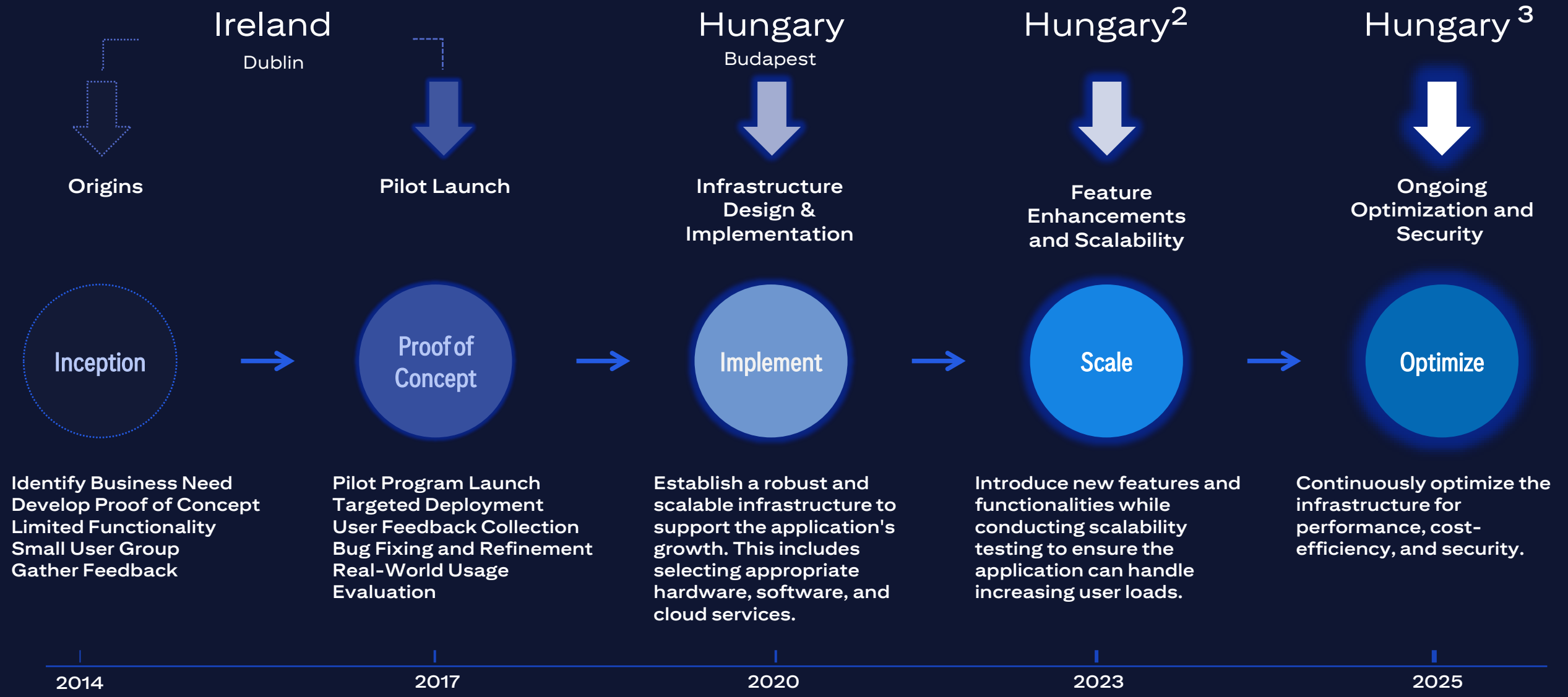


Training and Knowledge sharing with users



Collaboration With Vendors & users on Product Roadmaps and Doctor Sessions

# KNIME – Evolution at Citi



# Digital Transformation



437

KNIME Workflows released to Production in 2024

1022

KNIME Workflows released to Production to date



EUCs Remediated to date

1800+

Reduced Support Costs



Reduced Security Risks

Malware, phishing, data breaches.



Shadow IT

Migrating workflows from unauthorized software & apps to CORE IT



Increased Productivity



Increased Control

Eliminate Update Issues



# Keeping our Systems Strong



## Vulnerability Management

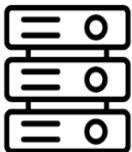
180 vulnerabilities reduced to 38 in 2024

80%



## Tech Mandates

KNIME Workflows released to Production to date



## Server Upgrade Management

11 new servers configured and setup in 2024



## CoB Testing

Completed and tested in line Citi DR policy



## OS & Middleware management

ALL Servers upgraded to RHEL 8 in 2024



## Server Stability

50k workflows executed in 2024

306 failed or 0.61%



## Server Availability

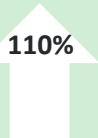
Currently running at 99.3%



## Server Utilisation

600+ unique workflows executed in 2024

110%



**KNIME is a Recommended tool in Citi & Core IT certified**



## 23 servers in EMEA

full HA in a multi executor configuration  
KNIMEHUB Adoption evaluation / PoC underway



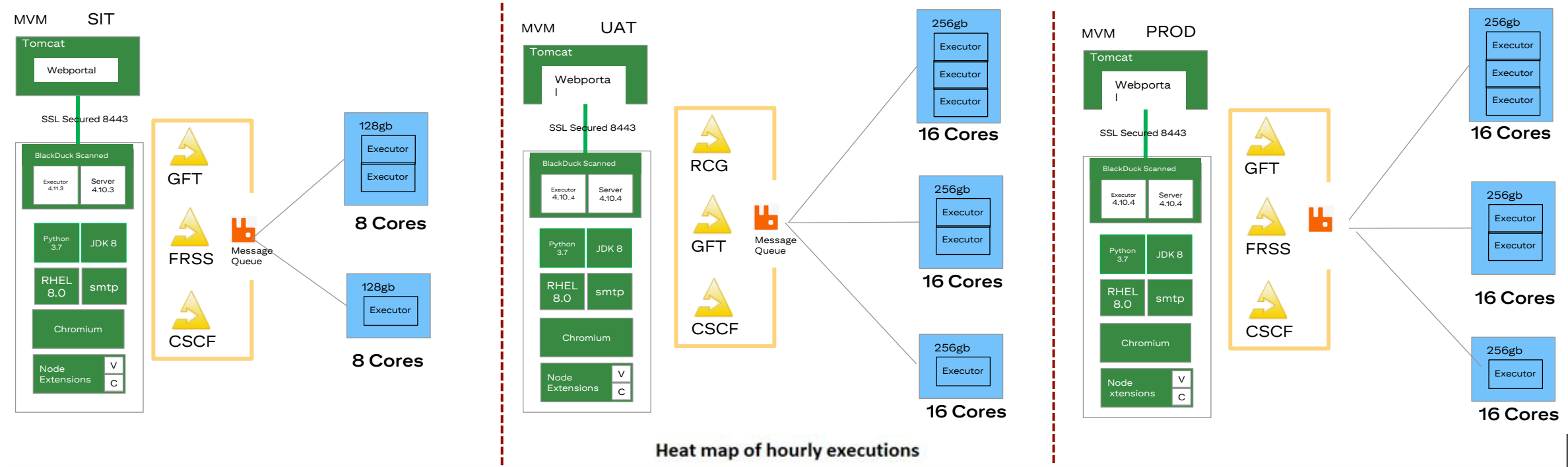
**Resilient High**

**Availability Architecture**





# GFT Digital Transformation - KNIME High Availability Architecture



Count of id																										
Month		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Grand Total	
January		11	13	27	32	2	8	95	219	509	586	758	674	376	427	404	451	392	340	177	110	63	35	17	16	5742
February		34	12	13	6	11	31	70	211	353	603	631	531	332	396	394	348	335	292	139	64	55	43	40	30	4974
March		14	13		12	15	16	81	190	317	525	569	398	298	345	331	294	318	187	92	56	50	44	25	10	4200
April		4	10	7	4	3	4	18	180	311	595	643	490	318	381	427	437	387	257	162	80	38	40	35	23	4854
May		8	5	3	4	2	21	44	131	354	510	540	360	216	246	273	265	281	186	100	47	39	22	32	22	3711
June		4	10	6	9	8	8	38	116	250	465	413	296	204	244	227	260	228	141	68	35	18	8	20	16	3092
July		24	21	3	2	2	7	35	129	230	431	420	294	211	225	261	258	204	134	103	35	57	21	7	5	3119
August		5	9	18	41	3	7	48	199	392	663	684	516	281	354	430	334	244	230	148	57	28	30	16	24	4761
September		24	4	15	4	17	11	43	221	367	639	707	461	286	409	389	423	329	268	121	51	30	20	11	9	4859
October		38	11	9	17	7	3	41	218	424	777	728	615	377	478	540	527	453	309	168	112	44	55	33	32	6016
November		28	7	31	39	4	20	74	172	321	499	527	442	263	310	293	262	228	138	91	79	37	28	26	24	3943
December						1	10	14	19	53	64	69	29	29	39	39	15	16	11	11	5					424
Grand Total		194	115	132	170	75	146	601	2005	3881	6357	6689	5106	3191	3854	4008	3874	3415	2493	1380	731	459	346	262	211	49695

# KNIME – Specific Challenges during Scaling



## Power User Model

- **Power User:** a non-IT staff member who develops end-user solutions, typically working with other Power Users
- **Business User:** an SME who develops solutions for their specific business needs but not as primary job function
- **Tech Team role** is limited to server support and maintenance, not building solutions in this model



## Challenges

- **Growing complexity**
  - *Use cases* – starting from Excel to KNIME conversion, now covering full country reporting
  - *Workflows* – several rule/conversion engines built and maintained as End User Solution
- **Workflow ownership:** different teams manage code and infrastructure, limiting control over workflow quality
- Unrestricted flexibility in the desktop app may lead to creative solutions unsupportable on Server



## Workflow quality control

- **Early Tech involvement** is constrained by regulatory deadlines and tight timelines
- **Automated solution** implemented for basic quantitative checks
- **Risk-based reviews:** end-to-end qualitative reviews occur on a sample basis, leaving potential gaps



## Workflow change management

- **Source code** managed through documentation only; no code-level tracking
- **Codebase knowledge evaporation** caused by staff turnover and org changes
- **Lack of transparency** in Production workflow logic, resulting in organizational memory loss
- **Change Requests:** gaps between Business, Power User and Tech resulting in vaguely formulated requests

Control Domain	Control Domain Maturity
Single Sign On	
Release Mgt	
EOVS	
Server Monitoring	
Vulnerability Mgt	
Specific Action plans	
CoB	
Audit Reviews	
Entitlements Controls	
Access Controls	
Infrastructure Security Review Process	

