# IBM Turbonomic

## Application Resource Management

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Assure application performance—
continuously and sustainably

Overallocation is an unsustainable method of mitigating risk.

The cost is financial as well as environmental.

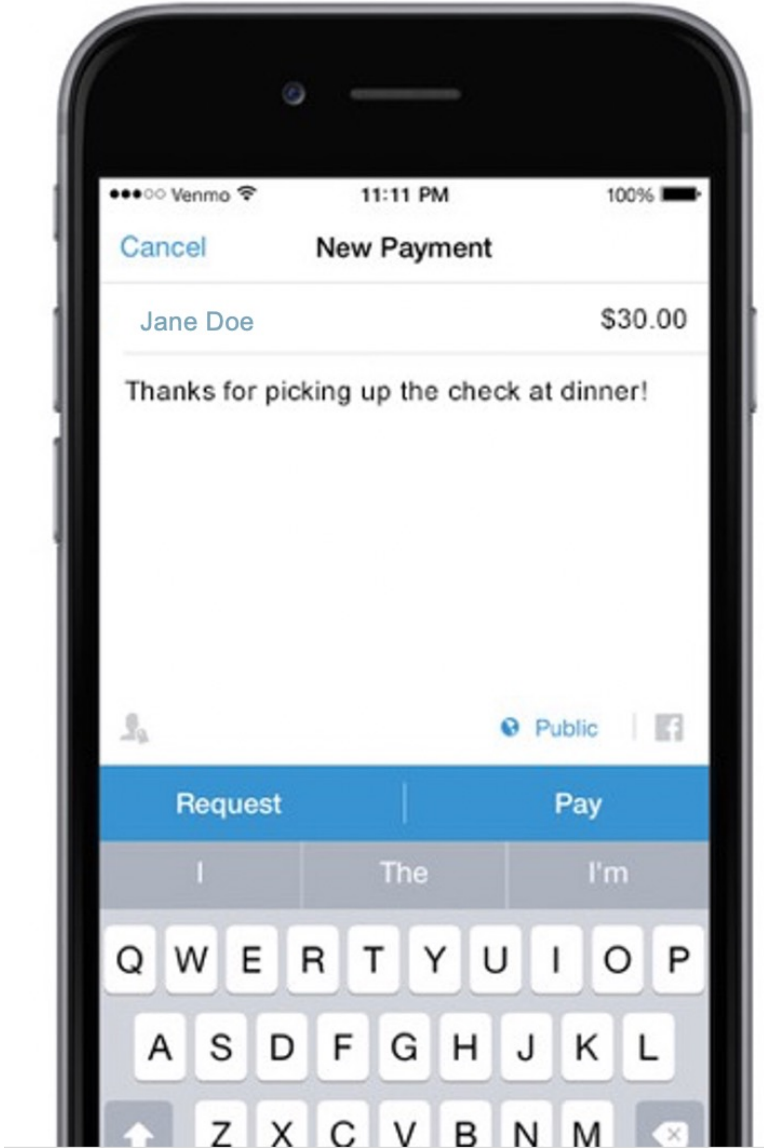

# 38%

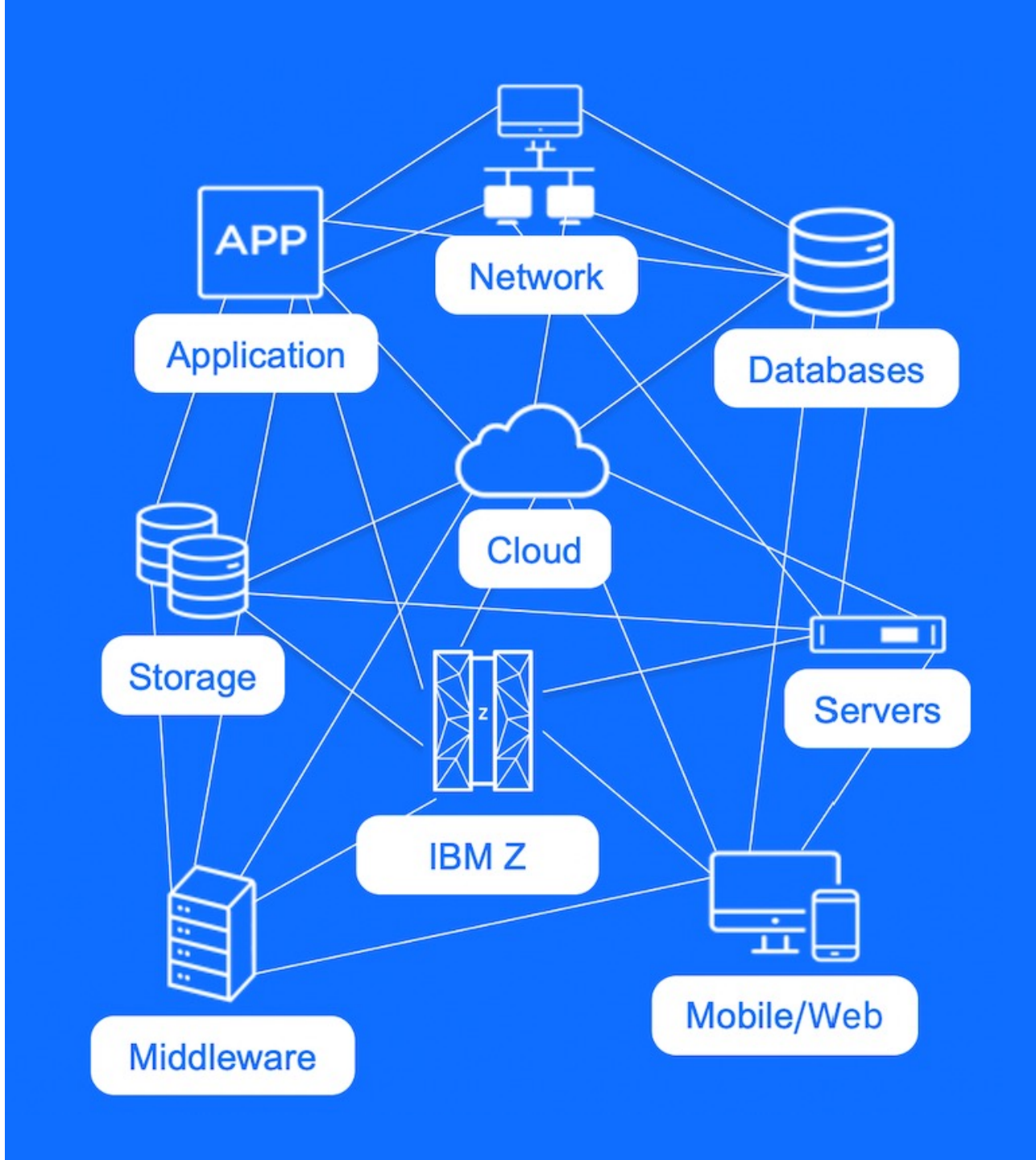
Optimizing cloud spend was cited by 38% as the top FinOps challenge when it comes to cloud operations.

# 20%

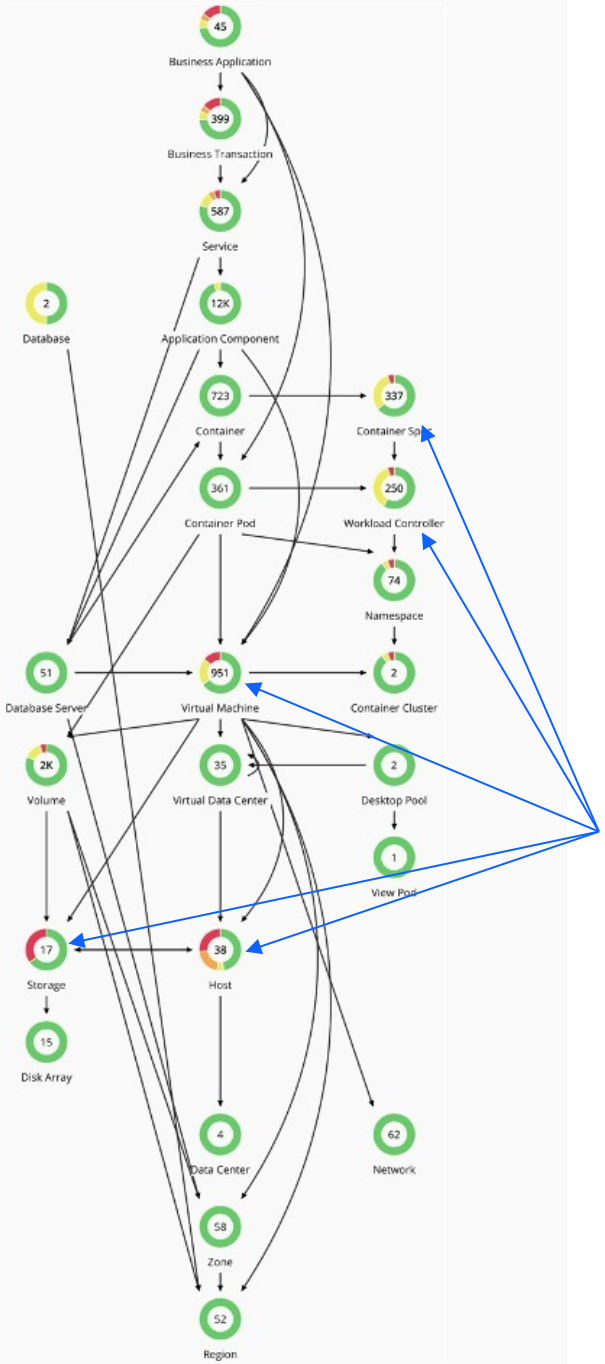
On-prem data centers typically operate at 20%—40% utilization

# But the modern application is complex…

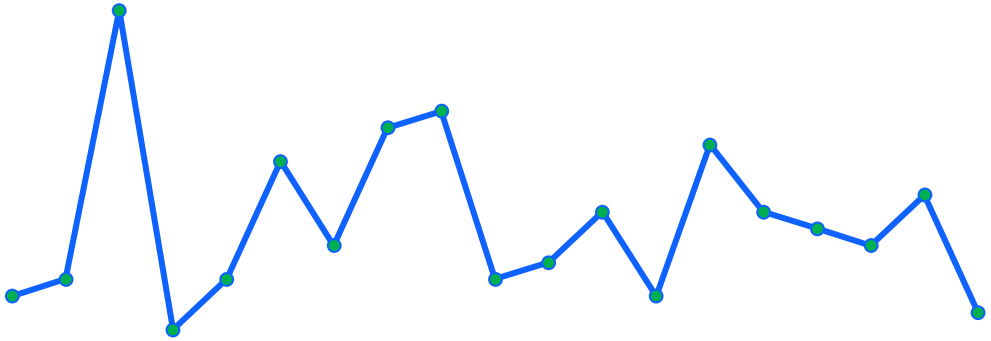


# The application stack

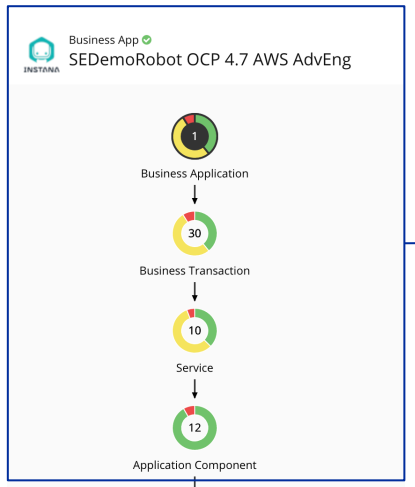


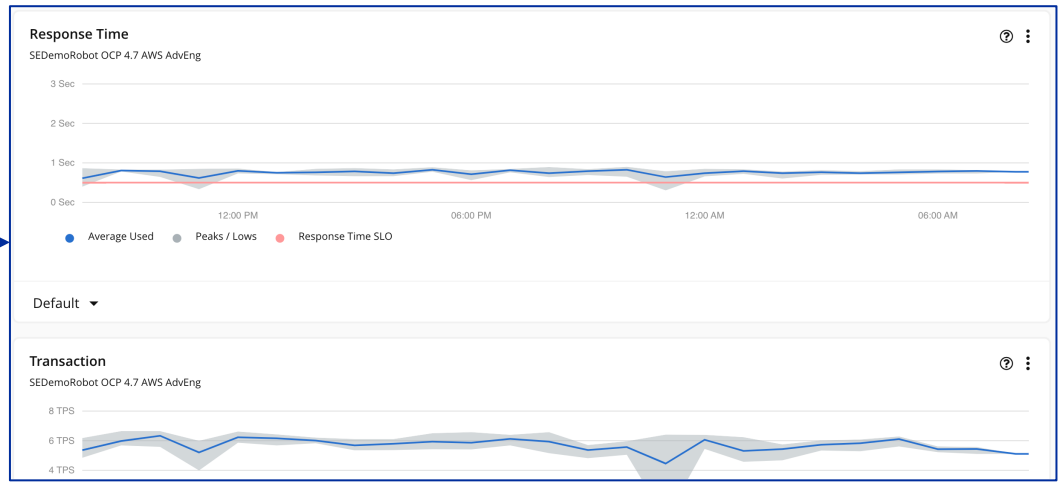

Driven by ever changing application demand

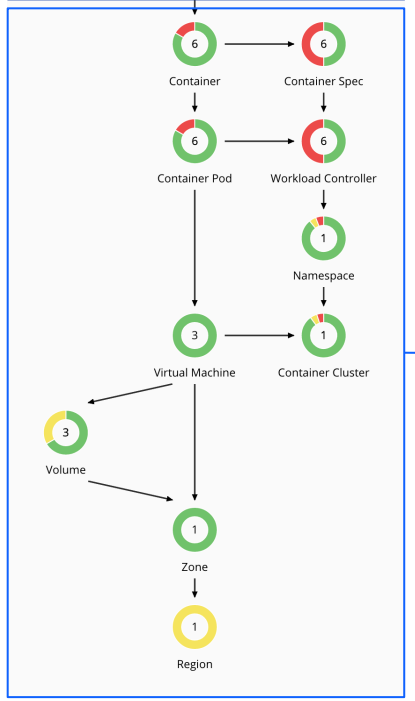


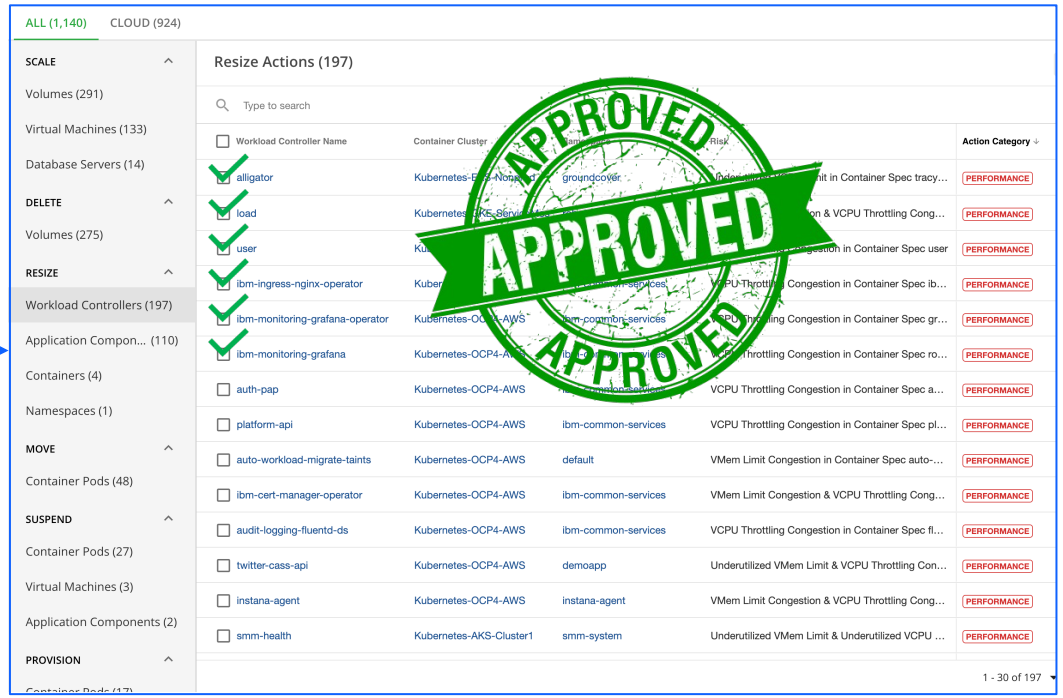
Causes congestion here

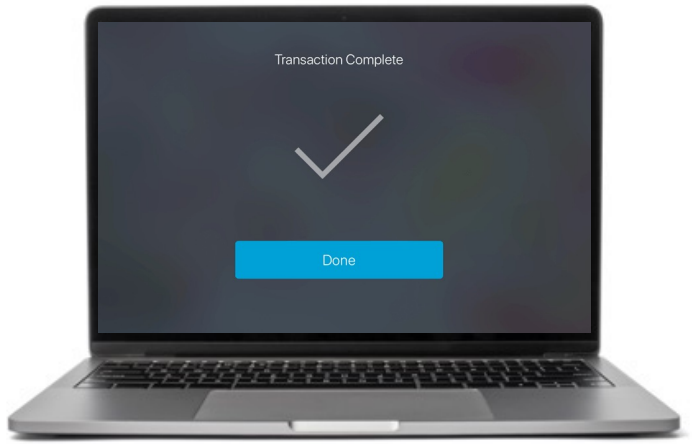
# Continuous performance, automatically




- Continuous performance
- Unified teams
- Unlock innovation

# Automating continuous optimization delivers real business outcomes

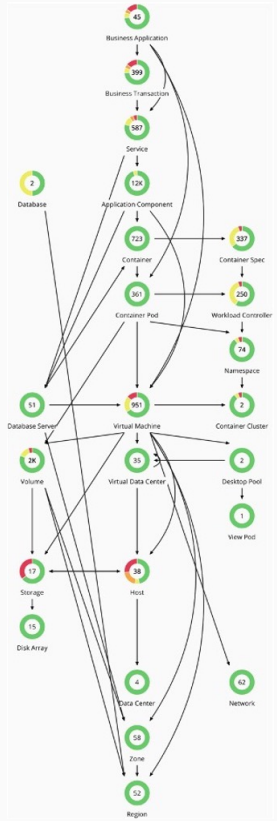
**Observability**

API-Driven Discovery.

- Applications
- Kubernetes
- Cloud Compute
- Cloud Storage
- Cloud DBaaS
- Cloud Reserved Instances & Discounts
- Hybrid & Multicloud

**Actionable Insights**

App-Infra Mapping




**Trustworthy Actions**

- Intelligent sizing
- Continuous placement
- Dynamic scaling
- Start/stop

**Automation**

Execute & Integrate Actions

- Manually (with a click)
- Scheduled
- Pipelines & Workflows
- Real-time

*Supported on Azure, AWS, Google Cloud, Red Hat OpenShift, VMware, and more.*

Forrester Total Economic Impact of IBM Turbonomic Application Resource Management

Improve application performance

Increase IT team productivity

**33%** Reduction in public cloud spend due to dynamic scaling and workload resizing

**75%** Improved infrastructure utilization and avoided annual refresh costs by 75%

**70%** By understanding app demand, avoided required infrastructure growth spend by 70%

## Sustainable IT

Optimizing application resource consumption either in the datacenter, the public cloud, or both, improved an organization's long-term energy consumption profile.

# Sustainably assure application performance as you digitally transform the business

Continuous application performance at the lowest cost

## Data Center Optimization

More effective use of existing assets, more effective purchasing for infrastructure growth.

## Cloud Migration Planning

App-driven, optimized planning ensures responsible cloud consumption from the start.

## Continuous Cloud Optimization

Safely reduce cloud consumption. Continuously consume sustainably as the business grows.

## Sustainable Elastic Cloud

Elastically scale modern apps based on response-time, achieving great digital experiences *and* elasticity.

**Scope 1 & 2**

**Scope 3**

# How IBM’s own data center is using IBM Turbonomic

to support corporate sustainability goal: net zero greenhouse gas emissions by 2030

**IBM Hursley**
Hyperscale Cloud
Data Centre (HCDC)

IBM Turbonomic identified hidden resources and also where they have been too lean.

Leveraging integrations with **Instana, OpenShift and IBM FlashSystem (Storage).**

IBM Hursley’s Hyperscale Cloud Data Centre (HCDC) is one of IBM's flagship data centers consisting of a 27,000 square foot room and supporting over 11,000 developers. They deploy leading technologies, with a focus on energy savings and optimization for the last decade.

It supports:

- 580 racks containing IBM development
- ~4,500 physical systems,
- ~87% virtualized with a range of technologies including: 2x private developer clouds, and ~6,000 VMWare based systems
- >10 Petabytes of enterprise grade storage
- 11 mainframes including the latest z16
- 1-100G networking with direct 10G links to IBM SoftLayer

“When we first provisioned Turbonomic we were impressed with how quickly we got it running. One of the main benefits is that it gives assurance of your environment, continues to give recommendations, while also allowing you to customize policies.”

Colin Holyoake
IBM Cloud DataCentre Technical Manager & Master Inventor

# Top 5 US Bank

Achieves $27 million in ROI via improved application performance

## Challenges

- Performance risks
- Inefficiency
- Managing complex environment
  - 240,000+ VDI
  - 120,00+ VSI
  - 100+ OpenShift Clusters
  - 60,000+ Containers

## Solution

“With the help of Turbonomic we have been able to **achieve $27M in ROI via improved performance and reductions in L1 & L2 tickets**. We have seen an 80% reduction for resource requests in addition to a reduction of 14,000 tickets PER MONTH!”

MD End User Services

### Integrations

- AppDynamics
- VMware
- Red Hat OpenShift

## Results

- **400 Physical ESX hosts suspended over 3 yrs** by managing performance instead of OP ratio
- **$800K Savings** in OS Segmentation alone. **$1M+ Savings in DB Licensing** Segmentation.
- Lowered CPU contention by 40%, improving VDI performance by automating 1,000 actions per week, while also improving density by 17%.
- Cross-cluster migrations improved resiliency and performance; maintains HA by mitigating IaaS performance risk – VM dynamic placement to avoid resource congestion.

# Top 5 US Bank

Assures performance for 2,000+ business applications

## Challenges

- Performance risks
- Inefficiency
- Managing complex environment
  - 3,000+ Business applications
  - 70,000+ Other applications
  - 60,000+ VMs
  - 4,000 Hosts

## Solution

“As we accelerate our digital transformation and transition to the next generation architecture, **Turbonomic provides a way to ensure and gain direct insight into the performance of our business applications**!”

Managing Director, Infrastructure

### Integrations

- AppDynamics
- VMware

## Results

- Integrated AppDynamics and Turbonomic to use application metrics to make the best resourcing decisions and improve end user experience
- Additional headroom for over 1,200 VMs with existing hardware with placement automation enabled while considering all HA compliance policies
- Reduced MTTR; reduce performance risks by using Turbonomic decisions and automating actions

# Top 15 US Bank

## Challenges

- Performance risks
- Inefficiency
- Managing complex environment

## Solution

Turbonomic automatically generated resourcing actions to improve the health of this complex environment...

- 700,000+ actions to reduce performance risks
- 55,000+ actions to maintain compliance
- 45,000+ actions to improve efficiency

### Integrations

- ServiceNow
- Ansible
- VMware

## Results

- 240 TB reserved memory reclaimed
- 122 TB storage reclaimed (~$500k)
- Simultaneously increased IT productivity with 800,000+ automatically generated actions optimizing for performance, compliance, and cost

# Next steps

| Define Success | Get Started | Installation Review | Business Impact Presentation |
|---|---|---|---|
| 1. **Scope** environment, use cases and measurable outcomes<br>2. **Sign off** at both technical and budget holder levels | 1. **Deploy** on prem, in the cloud, or as SaaS<br>2. **Add Targets** - discover apps, hybrid cloud & containers | 1. **Walkthrough** of Turbonomic running in your environment<br>2. **Review success criteria** with key stakeholders | 1. **Detailed summary** of business and technical gains<br>2. **Leveraging data** from POV |

Put us to the test…

- See actions in 30 min or less.
- Execute a non-disruptive action.
- Congratulations, there is your first step towards accelerating sustainability through elasticity!

# SulAmérica Case Study

## Turbonomic automation on Red Hat OpenShift improves performance and efficiency through peak demand.

READ FULL CASE STUDY

"Our team's macro goal is to deliver an application- and SLO-driven hybrid cloud. Applications will run wherever it best suits the business, and they will continuously perform and delight our customers. Turbonomic is not only helping us specifically operationalize our vision, but also giving us the time back to focus on what strategically impacts SulAmérica's business."

Rafael Noval

Technology Leader of NOC & Web at SulAmérica

### Business problem

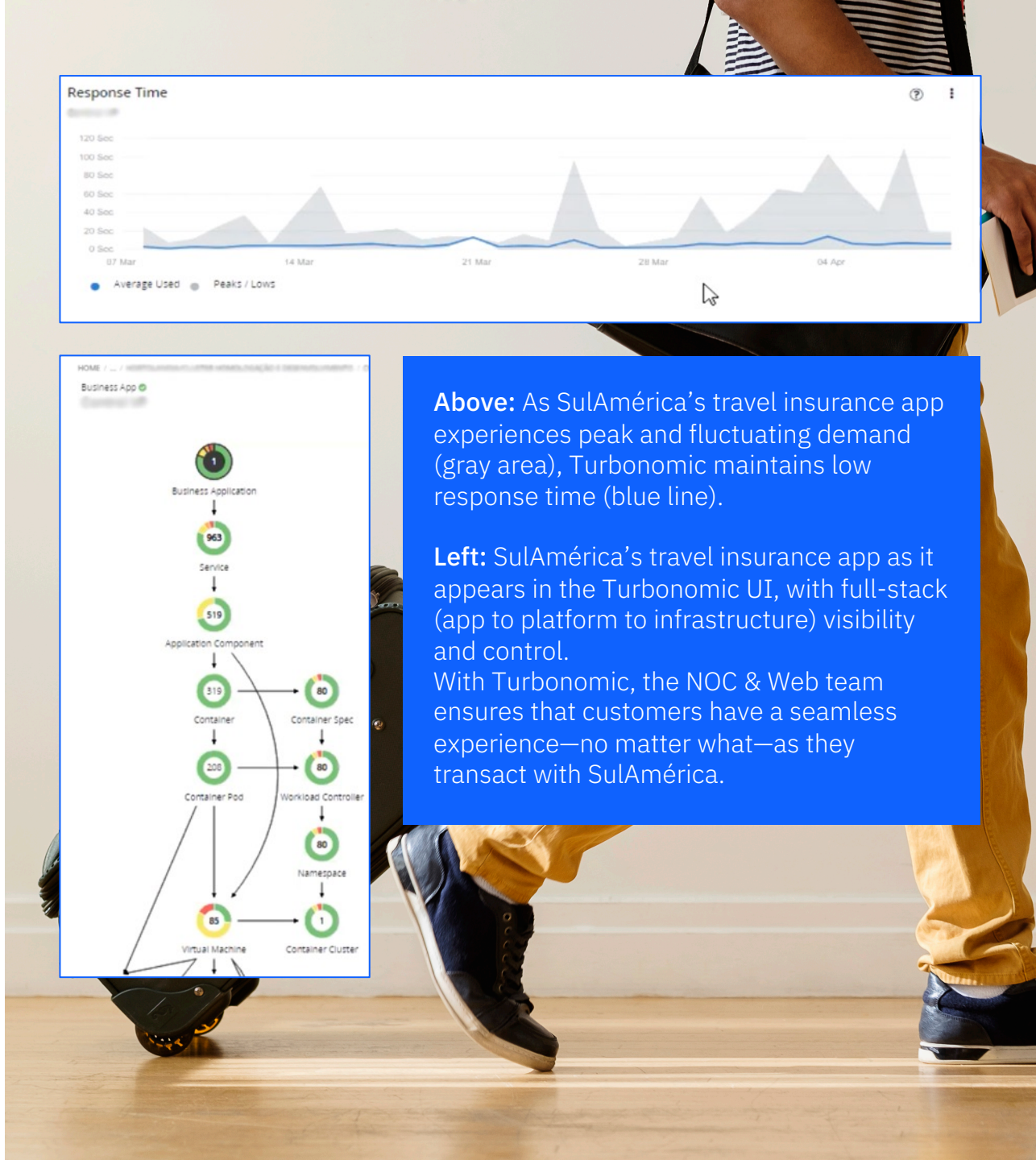
- Operating at scale
- How to assure performance for 57 business applications on OpenShift (7,000+ containers; 3,000+ Pods)

### Solution

- Low app response time even under peak demand
- 70% reduction in tickets
- 11% improvement in node density

### Key Integrations

- Dynatrace
- Red Hat OpenShift
- Vmware
- Azure
- AWS




**Above:** As SulAmérica's travel insurance app experiences peak and fluctuating demand (gray area), Turbonomic maintains low response time (blue line).

**Left:** SulAmérica's travel insurance app as it appears in the Turbonomic UI, with full-stack (app to platform to infrastructure) visibility and control.
With Turbonomic, the NOC & Web team ensures that customers have a seamless experience—no matter what—as they transact with SulAmérica.

# Professional Services

## Challenges

- Stalled onboarding of new applications to the cloud
- Assure performance for
  - 832 subscriptions
  - 45,000 VMs
  - 12,500 DBs

## Solution

"We have lots of APM, management and monitoring tools but in terms of giving me the exact recommendations **what do I need to do and what actions to take, there is nothing like that - except for Turbonomic.** Humans are not sustainable for optimization, it requires Turbonomic."

**Director, Cloud Adoption and Optimization**

### Integrations

- AppDynamics
- VMware
- Azure
- ServiceNow
- NetApp

## Results

- 42 onboarded apps
- $6.6M in cloud savings achieved
- 5,284 actions executed
- $37M in cloud savings identified

# Professional Services

London-based multinational professional services company resolves 745 performance issues & achieves $12 million in cloud savings

## Challenges

- Poor performance
- Cloud cost overruns

## Solution

“A lot of VMs are overprovisioned and we pay a premium for things we don't need, Turbonomic shines the light on these inefficiencies.”

Associate Director, Infra. & Cloud Services

### Integrations

- AppDynamics
- VMware
- Azure
- Kubernetes

## Results

- $12M in cloud savings achieved
- 745 performance issues resolved
- 13,000 savings actions

# Energy Company

## Challenges

- Experiencing application performance issues due to resource congestions.
- Migration to hyperconverged & Azure was “best-guess” on resource requirements, leading to overprovisioning.
- Manual processes of monitoring thresholds to identify any application performance issues.

## Solution

- Continuous application performance
- Reduced manual effort and labor due to automated actions
- 433,000 actions executed automatically
- 37,000 hours saved due to automated actions
- 20% reduction in CPU peaks

## Results

- 95% reduction in application performance issues due to placement automation
- $50k savings realized in first month of 2020 for $600k in CY2020. Future savings of $120k per month on PaaS based on SQL as workloads are migrated to Azure
- Decreased on-premises data center costs by reclaiming 200TB of wasted storage, over 230 vCPUs and 650 BN of vMem
- $124 savings per month due to SQL optimization. $430k savings per month via storage reclamation