# Artificial Intelligence ● Database Administrator
## For Microsoft SQL Server

**AI•DBA Software Inc.**

Update: 2025-01-10
Version 2.2.0
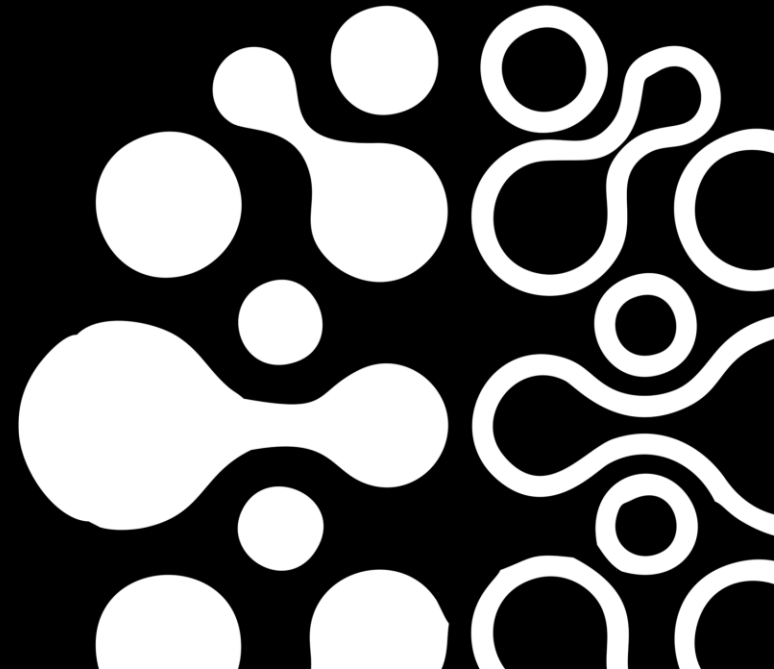
# Content

AI·DBA

# The fluctuation in database response time causes inconsistent business performance

**Continual innovations built into AI-DBA, giving you higher level of stability in business performance**

AI·DBA
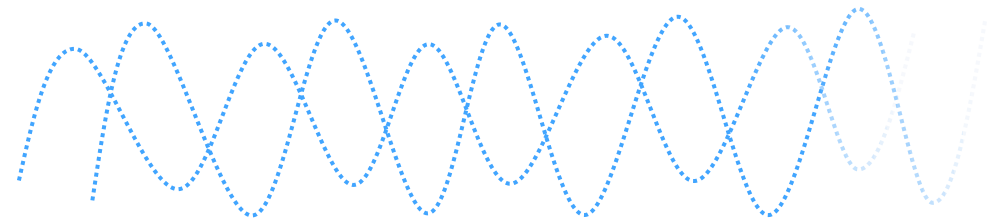
# Onboard Expert DBAs

**You can perform as good as an expert DBA by few clicks.**

- Reduce costs by providing preventive database maintenance.

- Catastrophic problem prediction through Machine Learning.

- Simplify the database administration and SQL Server farm management.

- Control your SQL Server utilization through a centralized portal.

- Get instant access to recommendations.

- Reduce time spent on maintenance and administration.

- View comprehensive reports for resource utilization.

- Automate repetitive processes by utilizing APIs.

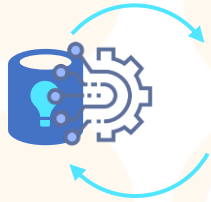- Pay-As-You-Go (PAYG) charging model with zero commitment.

# Hero Features

# Artificial Intelligence – Database Administrator

## New technology with intelligence over all your SQL Server database management process

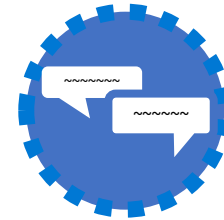| Intelligence Administration | Performance optimization | Data security | Data management | Communication | Extensive knowledgebase |
|---|---|---|---|---|---|
| AI and Machine Learning over all databases with the power of Azure SQL, Python, R, and Azure Cognitive Services | 200 Resource-intensive query optimization within five minutes<br><br>~60% Performance Enhancement with zero code changes | The best of machine learning and abnormal detection on data access and security | ML and LLM assist data administrators in managing, classifying, and profiling the data assets. | The first ever system in which humans can communicate and command to perform a task | The best internet search, intelligence summarization, and itemization |

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# Ai administration over databases

## Preventive maintenance and proactive administration with power of machine learning
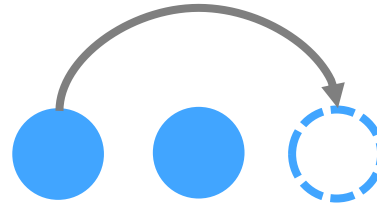
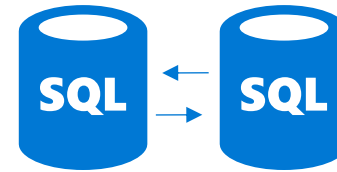| Intelligence maintenance window | Preventive maintenance | Proactive administration | Intelligence high availability | Intelligence consolidation |
|---|---|---|---|---|
| Exact peak and non-peak hours of SQL Server database instance for better maintenance window allocation | Predict upcoming problems via historical data analyzed in prediction models, and provides workaround instructions and scripts to prevent catastrophic disaster | Analyzes the statistical data and provides recommendation base on database workload to get utmost from hardware resources | Analyzes the SQL Server instances within the farm, evaluate and recommend for best high availability solution for existing workload and infrastructure | Evaluate the database workload and compatibility to recommend consolidation for better use of licenses and hardware resources. |
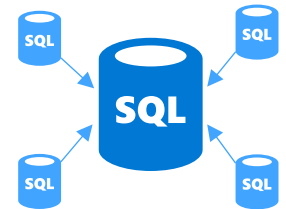
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# Intelligence performance optimization

## Gain performance with no app changes with intelligence query optimization
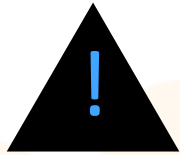
### Challenge
**DBA's spend most of their time tuning database performance, leading to high operational costs**

### Solution
**Intelligence performance optimization tasks for mission critical databases**

### Database structure and indexes analysis
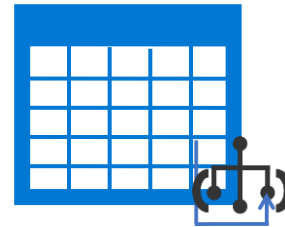
Table and index structures are evaluated based on database workload, configuration and queries

### Problematic queries revision

SELECT

Rewrites the long running queries base on best practices, tables structure and indexes.

### Expensive query plan resolution

SELECT ID, FIRSTNAME, LASTNAME
WHERE FIRSTNAME LIKE ='J%' AND
LASTNAME LIKE ='S%'
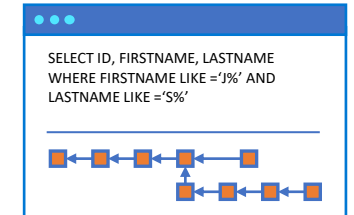
Alters the existing indexes or create new indexes to reduce the cost of query execution and enhances the performance.

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# You need a system that keeps up your databases with the changing world

**The system learns from workload, predicts catastrophic disasters and recommends the necessary changes**

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# Intelligence over data security

## Prevent data security breach – Always keep a step ahead

! **Challenge**
**Identifying vulnerabilities and preventing sensitive data leak requires high-cost solutions**

✓ **Solution**
**Intelligence features for data access privilege, access pattern analysis and monitoring & alerting**

### Intelligence abnormal activity detection

Learn data access pattern → Analyze data access request → Detect breach → Raise to security administrator → (loop)
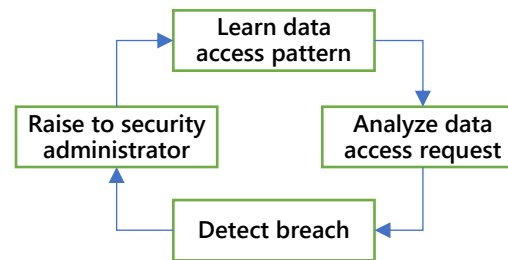
Learns within 3 months and detect abnormalities for existing users within a minute

### Active directory synchronization

SQL
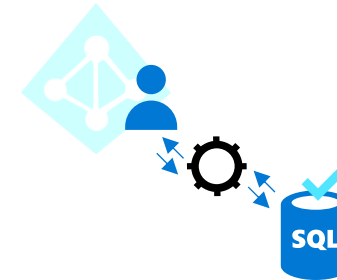
Synchronizes and validate account session every 30 seconds for linked SQL Server instances

### Intelligence data masking

| 1-356-7893-5796 |
| 1-356-6249-1238 |
| 9-469-7854-6879 |
| 6-789-2457-0136 |
| 8-967-5874-1279 |

| 1-35X-XXXX-X796 |
| 1-35X-XXXX-X238 |
| 9-46X-XXXX-X879 |
| 6-78X-XXXX-X136 |
| 8-96X-XXXX-X279 |
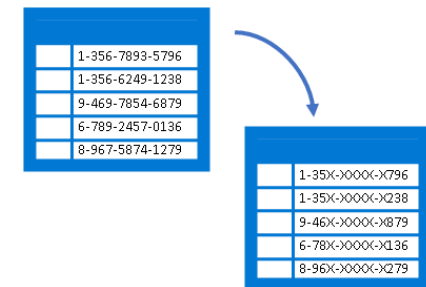
Analyzes and identifies the table columns for data masking based on knowledge base and model

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# Intelligence over data management

## Manage the data assets like a pro

### Challenge
**Identifying data classification and data profiling was a huge burden for administrators.**

### Solution
**Intelligence features for data classification, profiling, and live querying.**

### Intelligence data classification
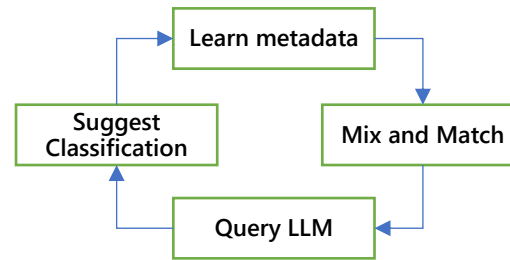


Learns the underlying metadata and uses LLM to find the most suitable classification.

### Data profiling and analysis



Run a smooth data profiling against the underlying tables to understand the data distribution.

### Live query terminal

```
SELECT  ID,
        FIRSTNAME,
        LASTNAME
FROM dbo.Personnel
WHERE
FIRSTNAME LIKE 'J%' AND
LASTNAME LIKE 'S%'
```

| |
|---|
| 1-35X-XXXX-X796 |
| 1-35X-XXXX-X238 |
| 9-46X-XXXX-X879 |
| 6-78X-XXXX-X136 |
| 8-96X-XXXX-X279 |

Write administrative queries or select one from the provided templates.

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# Intelligence communication

## First ever system to receive command via natural language

**!**

**Challenge**
DBA in charge is on leave or entity does not have in-house DBA, whilst require to perform basic Adhoc tasks

**✓**

**Solution**
Intelligence communication enables human and system collaboration via natural language processing.

### Intelligence e-mail processing

@

Receive and process natural language via E-mail and communicate with user if further information is needed

### Intelligence conversation

!?

Receive and process natural language via the portal and respond based on live data in the internet, and the collected telemetry data

(Available in Private Preview)

**Note**
* Certain critical commands will not get process such as DROP DATABASE, DROP TABLE, DROP FUNCTION, SHUTDOWN and etc.
* Certain authorized users will able to communicate with system.

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# Extensive knowledgebase

## The best of internet search, intelligence suggestion and self-healing

### Challenge
**Identifying correct workaround is time consuming and tricky.**

**DBA might overlook some underlying errors and warnings.**

### Solution
**Intelligence features for internet search and self-healing enable the system to identify, search and fix the underneath errors automatically**

## Intelligence Internet search
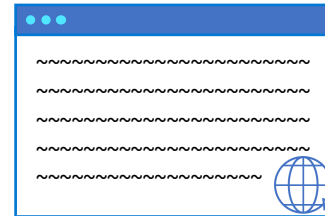
Searches internet for a workaround for the errors raised in database or windows server. The web page content is evaluated to assign the relevancy level with the error

## Intelligence self-healing

1- Run 'Control Panel'
2- Click 'Systems'
3- Click 'Remote settings'
4- Check 'Allow Remote Assistance...'
5- Click 'Apply'
6- Click 'Ok'
7- Close 'Remote settings'
8- Close 'Systems'
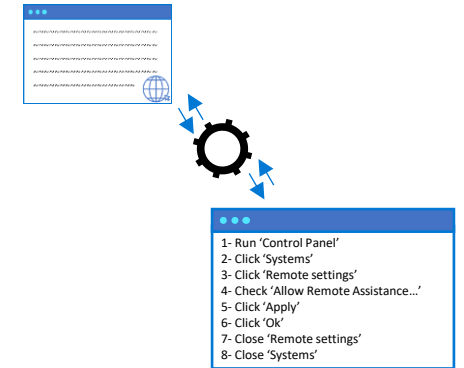
Summarizes and itemize the web page content, the generated action steps are fed to the agent service to apply the workaround automatically

(Available for Private Preview)

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**Leverage Ai to gain fabulous enhancement**

# Data Movement and Workflow

Data collection and movement at glance
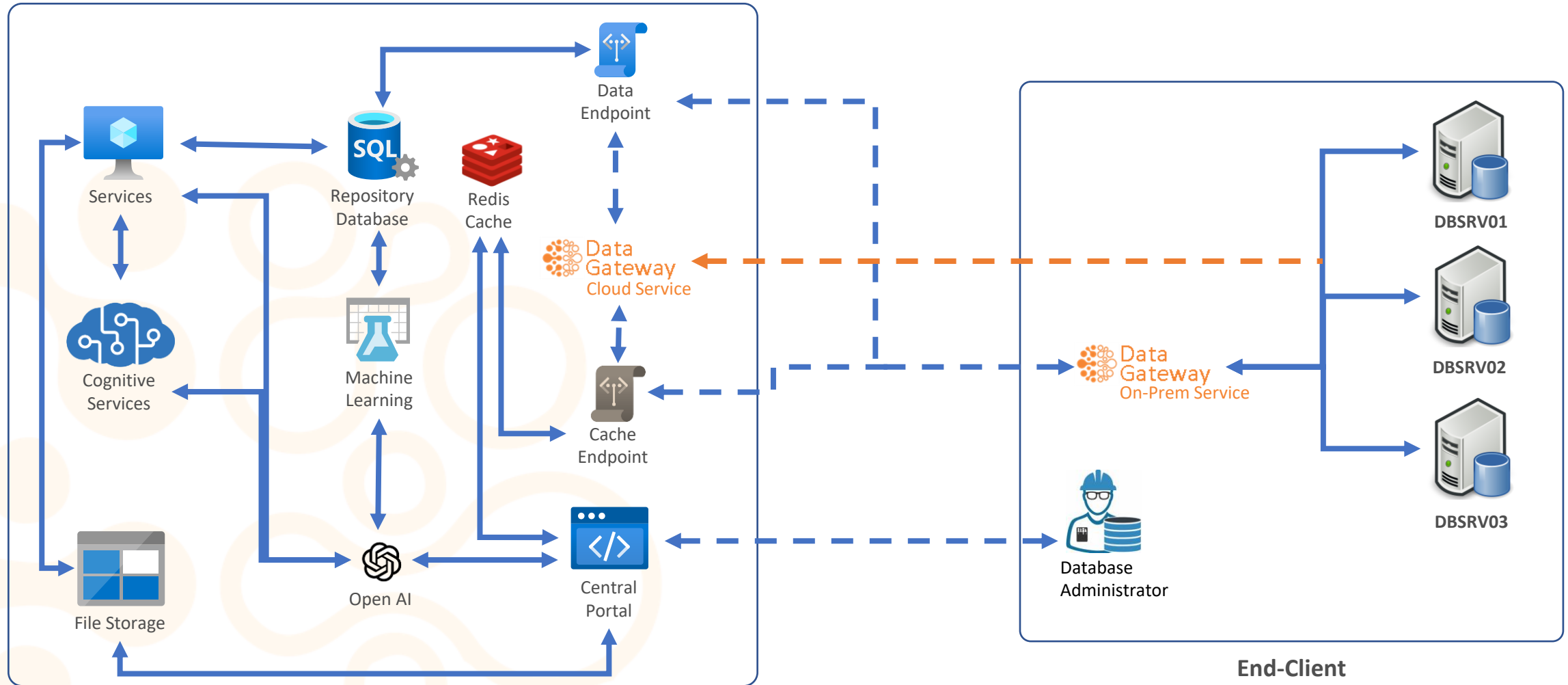
# The Recommendation Platform

## Data collection and movement blueprint

**Data Sources**

- Event Logs
- Traces
- Metrics
- Management Views
- Activities

**Services**

- Data Gateway

**Features**

- AI Administration
- Preventive Maintenance
- Security Hardening
- Abnormally Detection
- Performance Tuning
- Prediction & Real-Time Notification
- Automation & Quick Fix

**Teams**

- Database Administrators
- Database Developers
- Application Developers

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# Available Regions

Data resides within your region

| Regions | North America | Asia Pacific | South America | Africa | Europe |
|---------|---------------|--------------|---------------|--------|--------|
| Location | Iowa, United States Montreal, Canada | Singapore | São Paulo State, Brazil | Johannesburg, South Africa | TBD |
| Data residency | Stored at rest in the United States, Canada | Stored at rest in the Singapore | Stored at rest in the Brazil South | Stored at rest in the South Africa | TBD |
| Powered by | Microsoft Azure | Microsoft Azure | Microsoft Azure | Microsoft Azure | TBD |
| Available to | All customers and partners | All customers and partners | All customers and partners | All customers and partners | TBD |

# Target Platforms

Get all the databases in a good shape and health

Microsoft SQL Server 2005
Microsoft SQL Server 2008
Microsoft SQL Server 2008 R2
Microsoft SQL Server 2012
Microsoft SQL Server 2014
Microsoft SQL Server 2016
Microsoft SQL Server 2017
Microsoft SQL Server 2019
Microsoft SQL Server 2022

Microsoft Azure SQL Managed Instance
Microsoft Azure SQL Database
Microsoft Azure SQL Pool

Google Cloud SQL for SQL Server
Amazon Web Services (AWS) RDS for SQL Server

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# Free Support and Assurance

## Get the best support and advice with zero additional charges

### Support or advisory Ticket

We provide support or advisory for purchased subscriptions within 24 hours

The support is in the English language.

### Connect with expert engineers

Connect with expert engineers offer unprecedented expertise and education on AI-DBA product. Our engineers openly sharing information with a goal of improving the user experience and product functionalities.

### Receive hotfixes
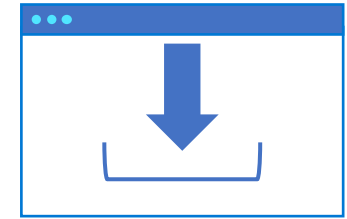
The hotfix is built by developers and applied to identical environment or all existing Ai-DBA services. Hotfixes are tested at engineering lab environment prior release to production.

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# Achievement Unlocked

## You can trust AI·DBA to do the job for you.

### Intelligence administration

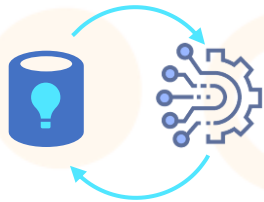**3,681** databases are managed on a daily basis

**1,574** instances are managed on a daily basis

**1,263** Catastrophic issues predicted and mitigated

**17** SQL Server farms evaluated for consolidation

**481** Pairs of SQL Server instances evaluated for high availability

### Choice of target SQL Server

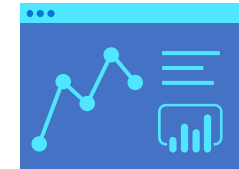**3,681** databases are involved

**84.3%** Mission critical databases

**15.7%** Cloud hosted

### Intelligence performance optimization

**1,681,579** resource-intensive queries tuned

Average **57.6%** performance improvement per database

### Insights over data security

**3,875,671** data access patterns learned

**395,275** abnormal data access identified and alerted

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# Real Impact

# Went Live Seamlessly!

## Challenge

IT personnel struggles efficiently monitor and optimize database workload. Difficult to derive practical database proactive and preventive maintenance

## Impact

Intelligence preventive maintenance and proactive administration.

## Recognition

"The Ai-DBA and services have provided fast and proven recommendations to ensure our biggest Navis N4 SQL Server database project goes live without any major performance and maintenance issues."

Abdul Rashid Bastami - Head of Applications

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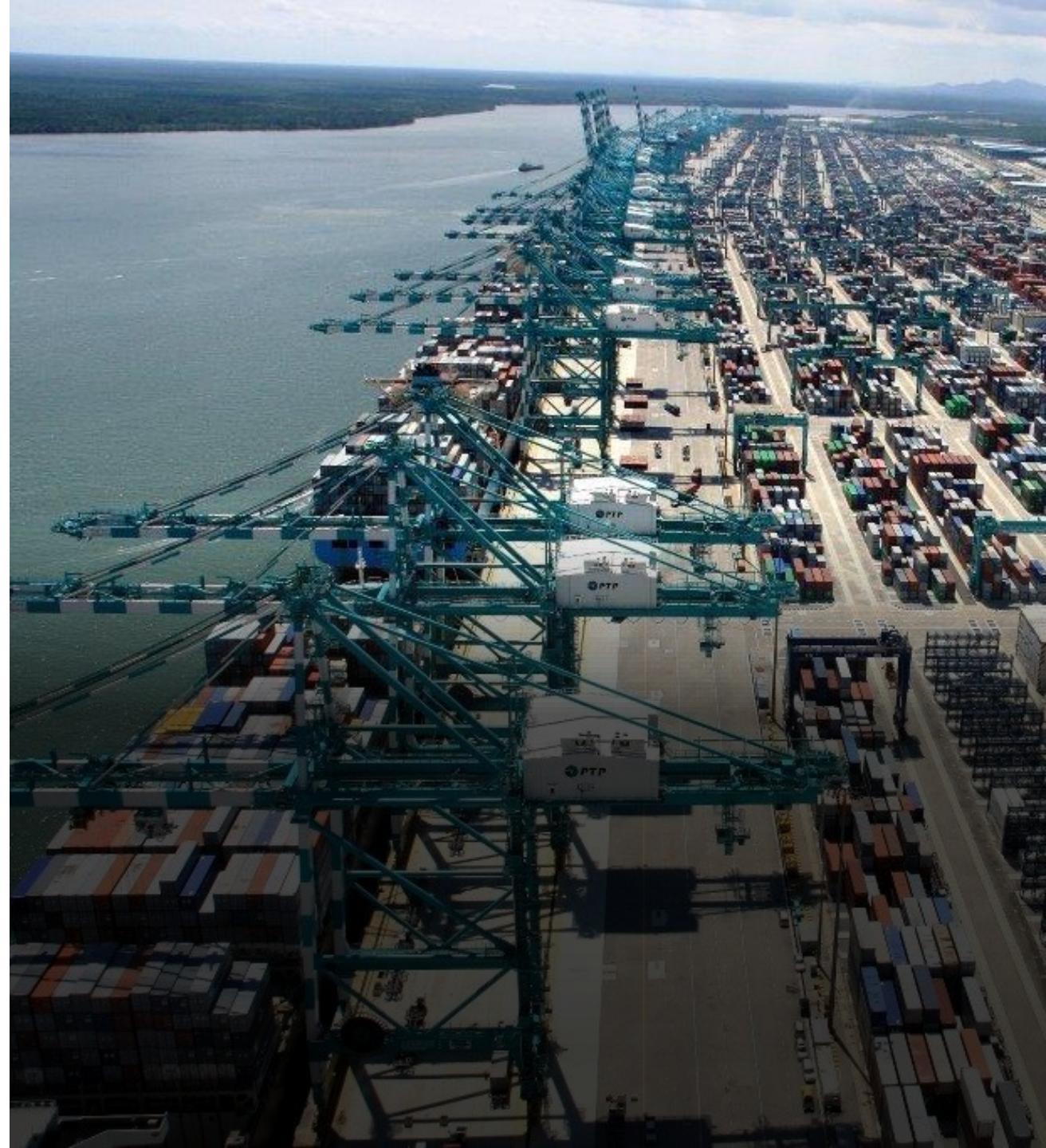
# Instant Issue Discovery

### Challenge

IT personnel and software developers were grapple with inconsistent database performance

### Impact

Intelligence performance optimization suggested to redesign database structure, this made a stable database performance

### Recognition

"Ai-DBA performed good. Provided quick analysis of what is happening in the database server and recommended on performance optimization as well as best practices on configurations"

Alex Wong - Head of Infrastructure

eGHL

# Phenomenal Database Consolidation

## Challenge

Insufficient manpower resources and tight project timeline

Unknown hardware resource capacity utilization by SQL Server instances

## Impact

Intelligence consolidation prioritized the database servers and recommended on consolidation approaches to minimize license cost and resource utilization

**Bank Muamalat** بنك معاملات

# Tremendous Database Optimization

## Challenge

IT personnel struggles efficiently manage databases at scale

Difficult to derive practical performance optimization on databases

## Impact

Intelligence performance optimization improved the database response time by 70%.

## Recognition

"Ai-DBA has helped us tremendously in managing the databases. With the improved optimal performance of the databases, my team and I can focus on development of the software solutions more."

Yow Hui Hui - IT Manager

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# Diminishing Resource Utilization

## Challenge

Hyperconverged Infrastructure (HCI) resource utilization was extremely high and positioned IT personnel in to having no choice other than expanding hardware resources.

## Impact

Intelligence performance optimization diminished resource utilization by 60%, also improved database performance by 40% in overall.

# Astonishing Reliability

### Challenge

Production line extremely impactful by Microsoft Dynamics AX performance.

IT personnel could not identify and resolve database performance degradation root cause.

### Impact

Intelligence administration and performance optimization improved the database response time by 550%.

### Recognition

"Ever since we signed our contract, we have managed to keep all ERP systems running 24x7 with total reliability. Thanks to Ai-DBA, also keep our users satisfied."

Hui Ling See - Head of IT

**Alcom**

# Enticing Database Corruption Prevention

## Challenge

Production line extremely impactful by Microsoft Dynamics AX performance.

Storage issues lead to catastrophic disaster pitfall

## Impact

Intelligence administration identified the storage related issues and provided preventive maintenance recommendations to mitigate database corruption.

foodXervices
FoodXervices Inc Pte Ltd

# Amazingly Stabled

## Challenge

Production line extremely impacted by instability of database performance and consistency

IT personnel could not identify and resolve database root cause.

## Impact

Recommendations given, stabilized the database consistency and improved performance significantly in average at 320%

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# Inevitable improvements

## Challenge

Production database size was huge (2TB) and sometimes cause short of resources due to heavy workload.

Administration tasks were manual and it took majority of IT personnel time.

## Impact

The resource utilization has been reduced significantly even though the workload remained the same.

All the administration tasks are automated with zero human intervention.

**BERJAYA SOMPO
INSURANCE**

# Day-to-Day Administration

## Challenge

Multi-critical database servers with a few available resources. The management decided to outsource the database operation and administration. This negatively impacts the IT department atmosphere.

## Impact

The Ai-DBA empowered the IT executives to act as senior database administrators with minimal effort. The system guided and educated the IT personnel related to daily administration chores.

**PNB**

# Keep Everyone Productive

## Challenge

The current construction sites are highly dependent on the software and database server performance. Any system performance degradation impacts directly the labor's individual performance and construction progress.

## Impact

Imagine what a high-performing database server does to the labor's productivity. All construction progress is updated in real-time without lagging in communication with HQ and engineers.

CIDB
MALAYSIA

# Sounds Great!

### Challenge

The analytical database performance was challenging during month end for campaign analysis and customer presentation.

### Impact

The top long-running reports and functions are tuned without significant effort. Just by a few clicks!

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MEDIA & AFFINITY CONTENT
Engaging people with their passions

# Unexceptional Stability

### Challenge

The production ERP system is highly critical and any performance degradation or downtime is a big business loss.

### Impact

The workload has been optimized and database servers are maintained well to keep the business up and running.

### Recognition

Fast response. The support team is professional and knowledgeable and willingly shares it with our internal team.

**Alice Alagamal**

**IT Manager**

# Outstanding Delivery

### Challenge

Since the pandemic, business intelligence reports and dashboards should be accessible from anywhere at any time. However, the migration to the cloud was a big challenge.

### Impact

The reports and dashboards are migrated to Azure Synapse and Power BI solution.

### Recognition

It was an absolute pleasure to work with Fard Solutions. they listened to our needs and provide us with valuable solutions and suggestions. It was a pleasure to work with them and they are attentive to details and proficient with SQL & Azure Synapse, issues along the way were sorted out quickly and efficiently. The project was delivered with quality and on time.

Goh Boon Ching

Business Intelligence Manager

sonepar
POWERED by Difference

# Try it, it works and you can trust it.

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