

Observability Starts Before
the Outage: **Synthetic
Monitoring for Modern
Systems**



What is Synthetic Monitoring?



Definition

- Simulate user interactions to catch issues proactively



Key Features

- Tests real user journeys: login, checkout
- Runs 24/7 from multiple locations
- Catches issues before users notice

Why Synthetic Monitoring Matters?



Key Challenges

- Complex systems: microservices, serverless, APIs
- High user expectations for seamless experience
- Distributed teams and global users demand reliability
- AI-driven monitoring provides predictive insights

2024 Study DATA

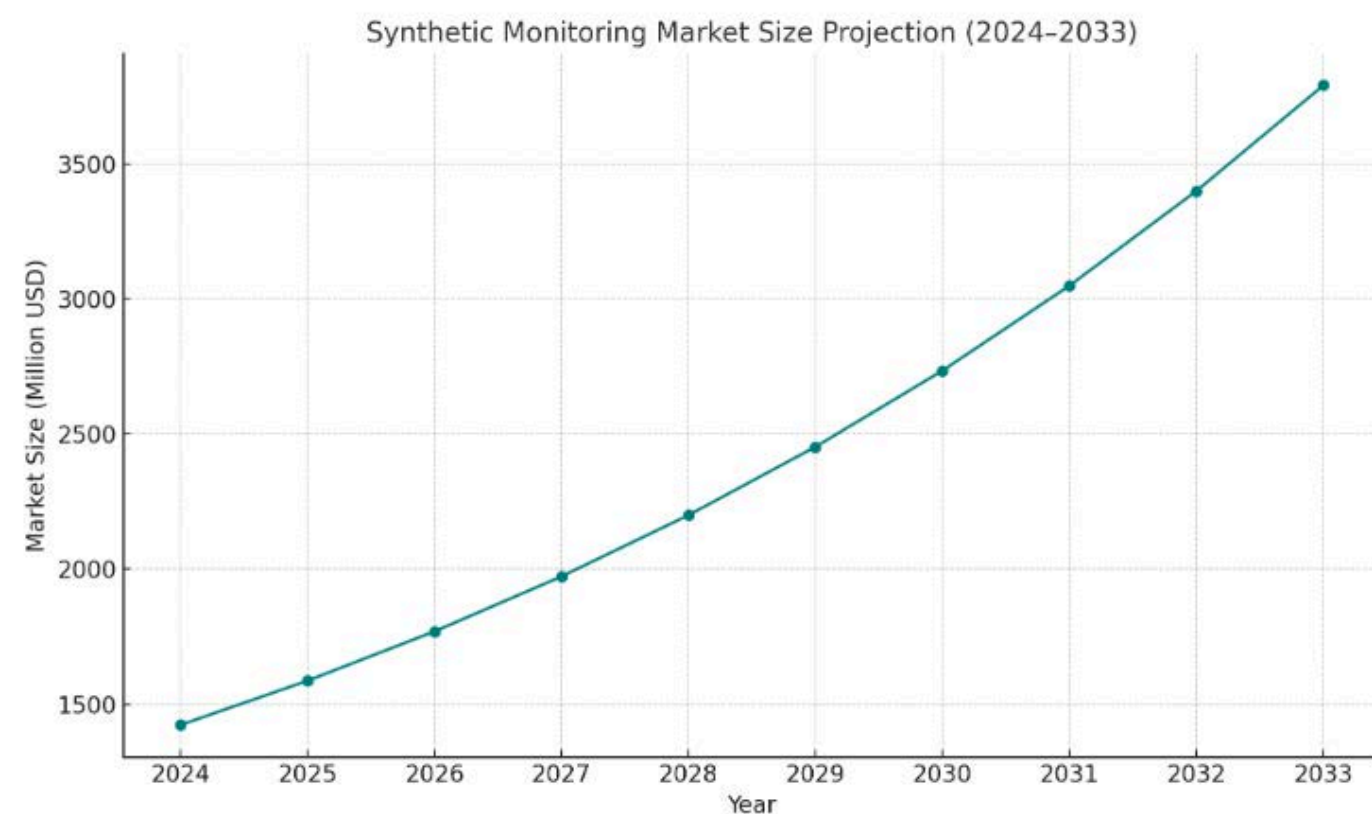
Downtime costs

\$100k/hour for Online Store



2-seconds delay=20% drop in customers

Synthetic Monitoring Trends in 2025



Market Insights

- Market reached **\$1.423B** in 2024.
- Projected to grow to **\$3.783B** by 2033 at 11.5% CAGR.



Key Growth Drivers

- Rapid cloud adoption
- Integration of AI in monitoring tools
- Shift towards proactive monitoring strategies

Types of Synthetic Monitors

API Monitors

Test backend endpoints

Browser-Based Monitors

Simulate real browser interactions

Scripted Monitors

Custom user journey scripts

Ping Monitors

Check server availability

SSL/TLS Certificate Monitors

Ensure secure connections

How to Implement Synthetic Monitoring



Identify critical user journeys, transactions, and APIs



Create synthetic scripts simulating real user flows



Select a monitoring tool available in the market



Schedule tests to run 24/7 from global locations.



Set up proactive alerts for issues.



Analyze data regularly to optimize performance.



Tools for Synthetic Monitoring



Key Features

- Multi-region testing
- Observability integration
- AI-driven insights
- Custom scripting support

Tips for Writing Useful Synthetic Tests



Best Practices

- Test from multiple regions
- Set realistic thresholds
- Focus alerts on critical issues
- Validate end-to-end flows



Example

Reduced false positives by 30% with tuned thresholds



Display Build Folders for repositories

```
1 Starting: Display Build Folders for repositories
2 =====
3 Task      : Command line
4 Description : Run a command line script using Bash on
5 Version    : 2.176.1
6 Author     : Microsoft Corporation
7 Help      : https://docs.microsoft.com/azure/devops
8 =====
9 Generating script.
10 Script contents:
11 dir "D:\a\1\s"
12 ===== Starting Command Output =====
13 "C:\windows\system32\cmd.exe" /D /E:ON /V:OFF /S /C "C
14 Volume in drive D is Temporary Storage
15 Volume Serial Number is 30E8-1D99 Checked out t
16
17 Directory of D:\a\1\s
18
19 11/01/2020  09:46 PM    <DIR>          .
20 11/01/2020  09:46 PM    <DIR>          ..
21 11/01/2020  09:46 PM    <DIR>          CommonFilesCons
22 11/01/2020  09:46 PM    <DIR>          CommonFilesProj
23 11/01/2020  09:46 PM    <DIR>          sharedbits
24                0 File(s)                0 bytes
25                5 Dir(s) 12,994,383,872 bytes free
26 Finishing: Display Build Folders for repositories
```


Key Takeaways

Synthetic monitoring catches issues before users do

Focus on critical user journeys

Integrate with your observability stack

Leverage AI for predictive insights



Thank You

Question?



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