**STEP 1: Alternative Tools Research**

Continuous Integration

**-Redgate- founded in 1999**

* Standardize deployments for SQL Server, Oracle, and 18 other databases
* Increase frequency and reliability of database deployments
* Flexible toolchain for easy adoption across teams
* Catch errors and speed up development with Continuous Integration
* Get oversight of every change to your databases

Redgate aim to enable companies to achieve effortless continuous delivery of database changes, mirror the application DevOps processes to speed up the software development lifecycle and avoid data being a bottleneck for innovation.

You can request a demo or free trial. The demo provides an in-depth tutorial on how to use Redgate.

[Redgate Software - Compliant Database DevOps Solutions and Tools For SQL Server, Oracle, & .NET (red-gate.com)](https://www.red-gate.com/)

Companies currently using Redgate include the University of Washington, Moda Health, and CVS Health

Redgate is based in Cambridge, England and is used all over the world.

Real Time Error Monitoring

**-Auvik- Founded in 2011**

* Complete your network picture with automated network discovery, inventory, and documentation that updates in real-time as the network evolves.
* Respond to network issues in real-time and dive deep into problems with syslog so your users are always connected to the business critical resources they need to do their job.
* Sleep easy knowing you have access to up-to-date device configurations, a snapshot of all historical configs, and the ability to export or restore a configuration with ease.

Auvik reviews rave about their ease of documentation, troubleshooting and device management. They have simple network topology and address management.

You can request a free trial and says you can get started in 30 minutes or less and allows access to a sandbox to test out immediately.

[Network Monitoring Software | Auvik Networks - Auvik Networks](https://www.auvik.com/lp/network-monitoring-software/?utm_medium=cpc&utm_source=bing&utm_campaign=L-P-BG-J1H-NA-CIT-S-HINT-NETWORK-PERFORMANCE&utm_audience=broad-network-performance-monitoring&msclkid=9356a0c2b6ff17922fa9c19585a3aff1)

Companies currently using Auvik include Fortinet (10k employees), Intruguard (5k employees), and Novus Leisure (5k employees)

-used heavily in the United Kingdom and the United States

**STEP 2: Runtime Analysis**

**extraLargeArray:**

insert 943.7941 ms

append 4.0691 ms

**largeArray:**

insert 9.0842 ms

append 544.2 μs

**mediumArray:**

insert 172.7 μs

append 150.7 μs

**smallArray:**

insert 113.4 μs

append 143.8 μs

**tinyArray:**

insert 44.8 μs

append 112.1 μs

The results show that the doublerInsert took quite a bit longer for the larger arrays. They somewhat became even with doublerInsert still being slightly longer in the mediumArray. The small and tiny array saw the results flip and the doublerAppend began to take longer.