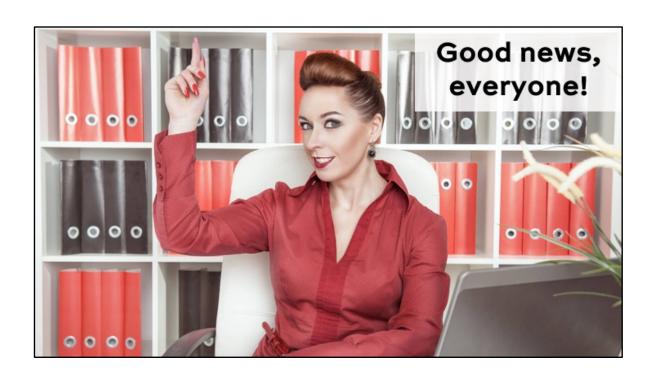# Lab 5: Architecture Changes

EelSlap.com: this is gonna be bigger than Bitcoin.

3.4 p1

We've acquired EelSlap.com

We bought a small startup in our industry space.
- 5 .NET developers (and they're staying on)
- No DBA or sysadmins

They've got an app that runs on SQL Server.
- SQL Server Standard Edition
- Fast paced web app:
  chatty, lots of calls to SQL

Their users are kinda unhappy with performance.

3.4 p3

We're about to hit the gas.

They only have about 100 customers today.

We have over 1,000 customers, and we're going to sell their app to our existing customers.

So we expect >10x user growth in the next 1-2 years.

Whatever Batch Requests/sec you're getting now, we need to do 10x more, if not 20.

We know we need to invest in the app & database.

3.4 p4

We're putting you in charge.

You can:

1. Have the developers stop adding features, and instead focus on specific performance changes you want, or

2. Request additional server hardware or licensing (they only own 8 cores of Standard Edition), or

3. Implement scale-out techniques to spread load

But here's the catch: you have a limited budget.
You can only do one of those things.

3.4 p6

Setting up for the lab

1. Restart the SQL Server service (clears stats)

2. Restore your StackOverflow database

3. Copy & run the Lab 5 setup script

4. Start SQLQueryStress:
   1. File Explorer, D:\Labs, run SQLQueryStress.exe
   2. Click File, Open, D:\Labs\ServerLab5.json
   3. No need to touch "Number of Threads" this time
   4. Click Go

3.4 p7

How I'd budget this afternoon

Hour 1: look for an easy boost. Run sp_BlitzFirst to check your wait stats, and look at what queries or indexes are causing those waits. Stop the load test, experiment with code and/or indexes. You may be able to get some fast gains right away. *Do not work more than 60 minutes.*

Hour 2: think long term. Start the load test again, and see how it's working now. What are the breaking points going to look like as we grow 10x?

Deliverable: write your recommendations. Do you want to change code/indexes, hardware, or scale out? Write it up, and explain why you want that approach.

3.4 p8

I'll be on Slack for the afternoon.

You can start working on the lab now.

I'll monitor Slack for your answers
and give you feedback.

Want to watch me do it? Go watch
the Instant Replay videos now.

3.4 p9

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3.4 p10

You can do this.

For questions, leave comments on the relevant module.

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- A note that you were in this class
- sp_Blitz @CheckServerInfo = 1
- sp_BlitzFirst @SinceStartup= 1

3.4 p11

3.4 p12