

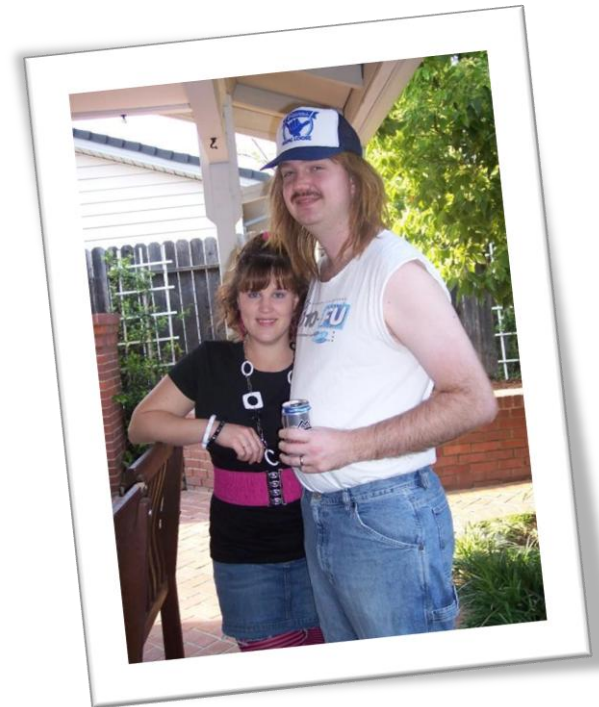
# ASP.NET - It's not just for DataGrids after all

[insert witty subtitle here]

A decorative graphic consisting of several horizontal lines of varying lengths and colors (teal, light blue, white) extending from the right side of the slide towards the center.

# About Me - JD Conley

- Chief Software Architect Hive7
  - We make social games on social platforms
- Independent consultant
- Specialize in scalability
- .NET fanboy



# Overview

- Knighthood
- Star Battle
- Database
- ASP.NET
- Facebook

# Knighthood

- Strategic medieval war game
- Unique challenge with many timed actions
  - 650,000 when I wrote this
  - 100/second average
- Every second of downtime hurts the bottom line

# Knighthood - Statistics

- 2+ million registered users
- 100K+ daily active users
- 10K concurrent users
- 12pm PDT Wednesday is peak time
- < 200ms average request execution
- 100mbit+ internet bandwidth
- 500mbit+ internal database bandwidth

# Knighthood - Implementation

- 7 application servers
- 4 database servers
- 50GB memcached
- 2 tier architecture
- Background task services
- Email notification services

# Star Battle

- Game design first
  - Narrative
  - Visual
- Turn based resource management strategy
- Ugly, since our art team was too busy for me
- No AJAX, yet...

# Random Thoughts

- Separation of concerns
- Shared nothing systems
- Optimistic concurrency (usually)
- Assume everything has to scale horizontally
- Assume all parts of the system will fail
- Nothing is easy at scale
- Master the art of building simple interfaces to complex systems
- Choose your optimization battles wisely

# Database

- Hard drives can't write fast enough
- Make databases dumb and code smart
- Sharding is your new best friend
  - Hey dummy don't forget to open Star Battle
- Databases are slow so use memcached

# ASP.NET Basics

- Threading configuration
  - Avoid the dreaded “Server is too busy” error
- Distributed session state (memcached)
- Distributed cache (memcached)
- Shared machine key
- Async I/O
  - Avoid the dreaded “Server is too busy” error

Server Too Busy - Microsoft Internet Explorer bereitgestellt von ppedv ag

https://msdn.one.microsoft

Server Too Busy

## Server Error in '/' Application.

### *Server Too Busy*

**Description:** An unhandled exception occurred during the execution of the current web request. Please review the stack trace for more information about the error and where it originated in the code.

**Exception Details:** System.Web.HttpException: Server Too Busy

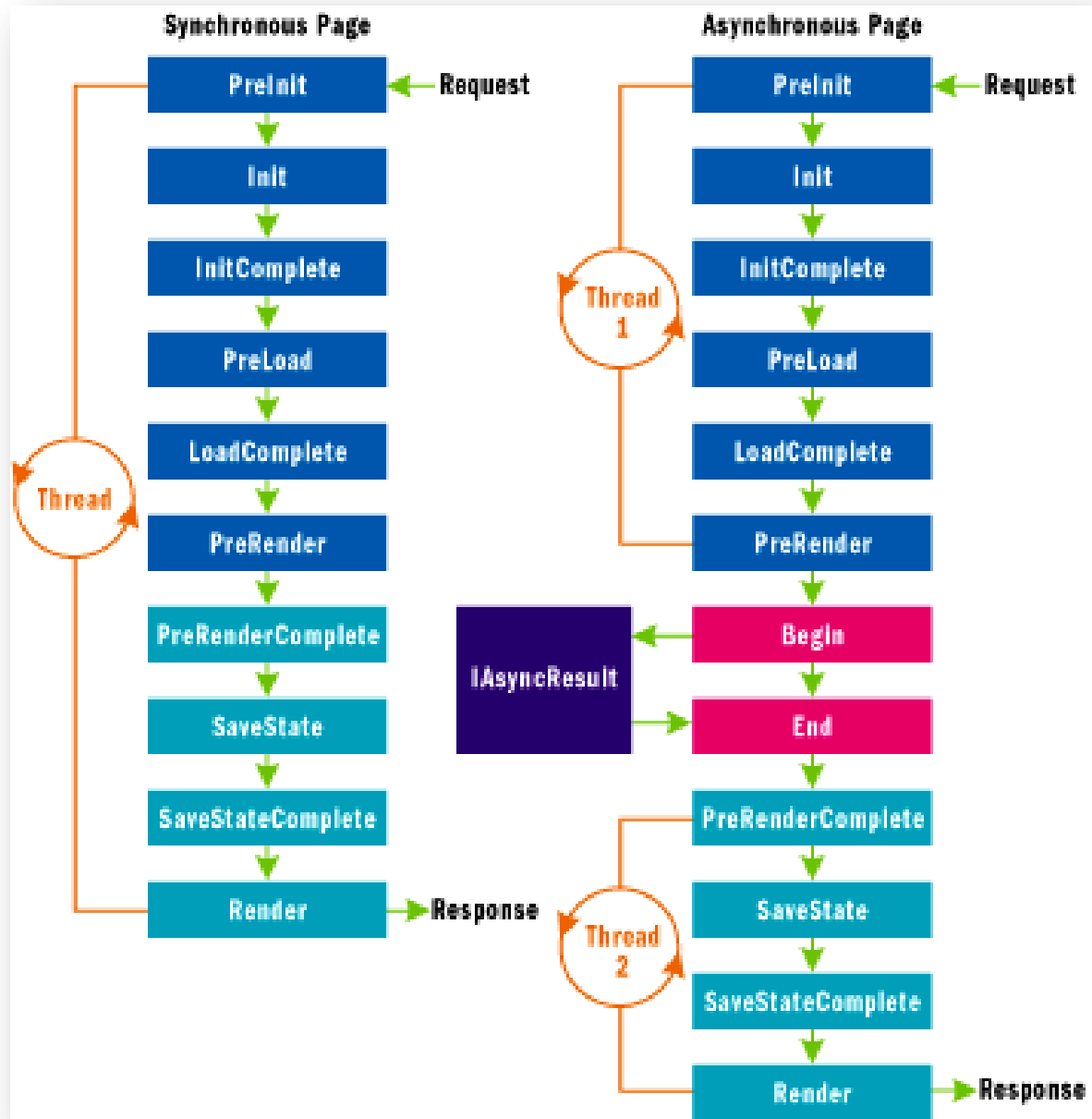
**Source Error:**

An unhandled exception was generated during the execution of the current web request. Information regarding the origin and location of the exception can be identified using the exception stack trace below.

**Stack Trace:**

```
[HttpException (0x80004005): Server Too Busy]
  System.Web.HttpRuntime.RejectRequestInternal(HttpWorkerRequest wr, Boolean
```

Internet | Geschützter Modus: Inaktiv 100%



# ASP.NET Monitoring

- Perfmon is King
  - Wealth of information in these simple metrics

```
\\belegost
.NET CLR Memory           _Global_
    % Time in GC           0.000

ASP.NET Applications      __Total__
    Request Execution Time    124
    Request Wait Time         0
    Requests In Application Queue 0
    Requests/Sec              26.509

Process                   memcached
    Virtual Bytes             336748544
    Working Set               311353344

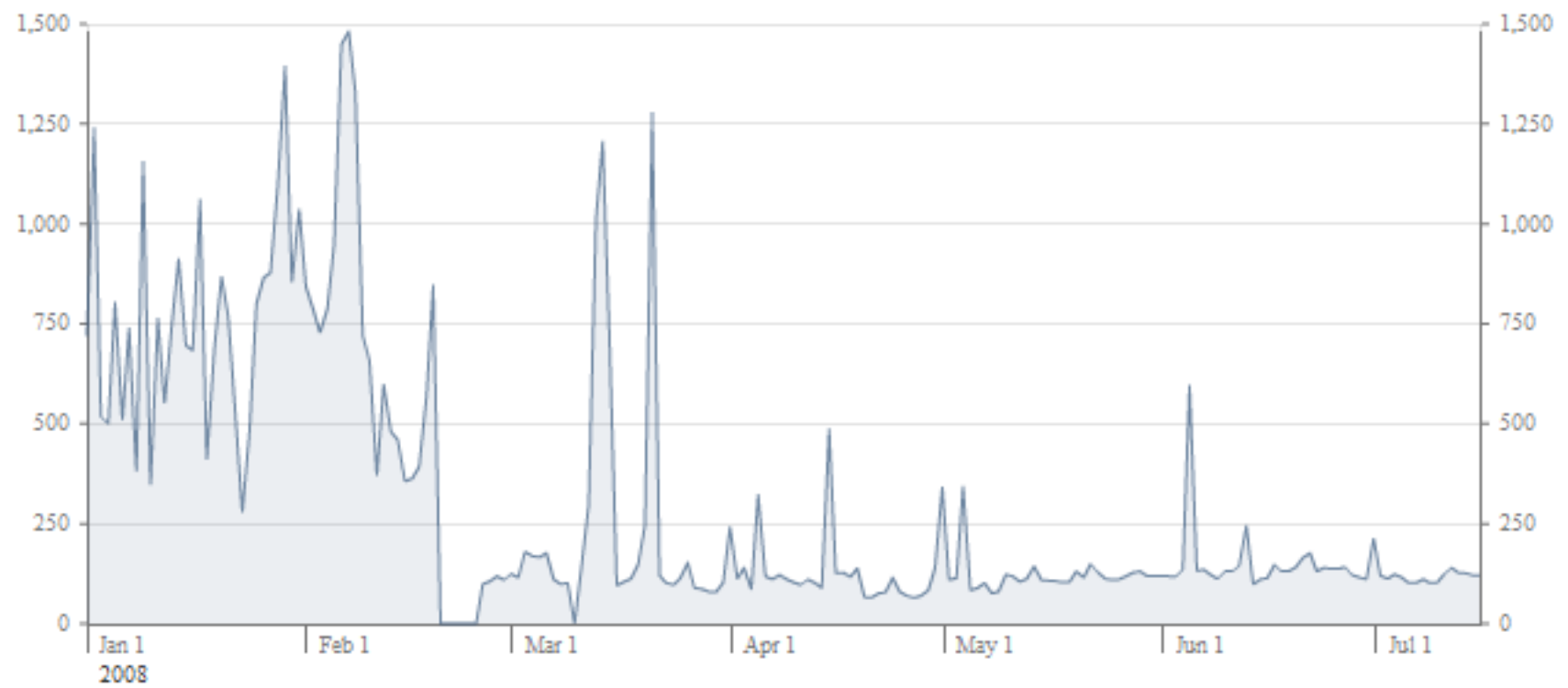
Processor                 __Total__
    % Processor Time          27.018
```

# Facebook

- Is slow sometimes
- Cache the data as much as is legal
  - 24 hours for most things
- Adjust maxconnection in system.net
- Go async!

Choose a graph: **Average HTTP Request Time on Canvas Pages (ms)** ▼

Past Day  Past 7 Days  Past 30 Days



# Facebook Development

- Authentication
- Iframe
- Fbml
- User communication

# Resources

- <http://www.jdconley.com>
- <http://blogs.msdn.com/nicd/archive/2007/04/16/dissection-of-an-asp-net-2-0-request-processing-flow.aspx>
- <http://support.microsoft.com/?id=821268>
- <http://www.codeplex.com/fbasync>
- <http://www.codeplex.com/memcachedproviders>
- <http://www.codeplex.com/EnyimMemcached>