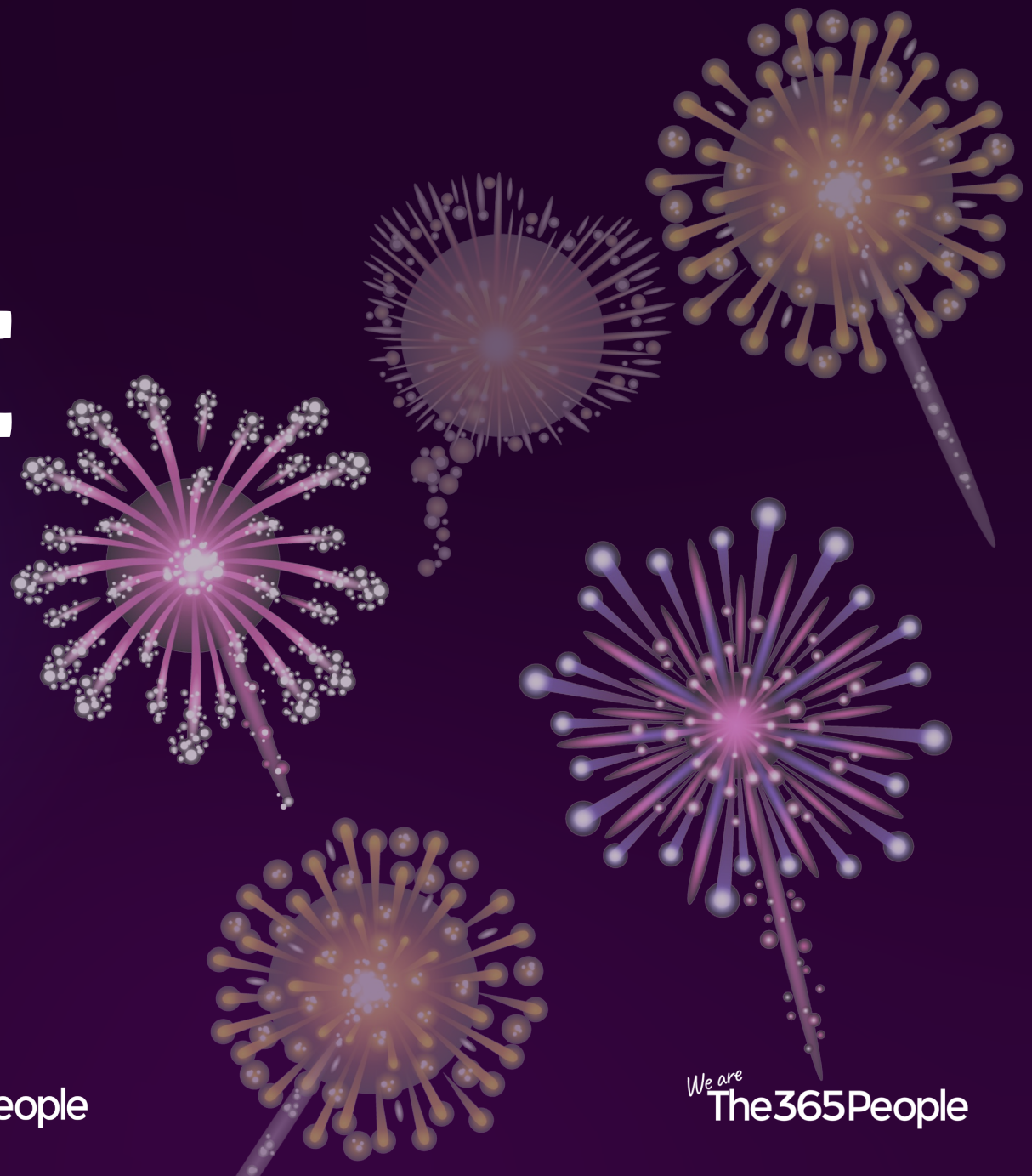
SYSTEM PERFORMANCE

The combined Old Brains Of TNP



We are The Power People

We are The NAV People

We are The 365 People

AGENDA

- How much can NAV scale
- “My system is slow”
- Basic Things to Check
- Techniques for scale
- Hardware and SQL
- Q&A

WHAT'S POSSIBLE

- Thousands of orders per hour
- 1,000s of CONCURRENT users
- 3TB+ Databases

“MY SYSTEM IS SLOW”

WHEN, WHO, DOING WHAT

- Is the problem constant all day, occasionally?
- Has it got gradually slower?
- Is it one particular process / screen?
- Is it one particular person / group of people?
- Is the “problem” screen or process slow on other machines?

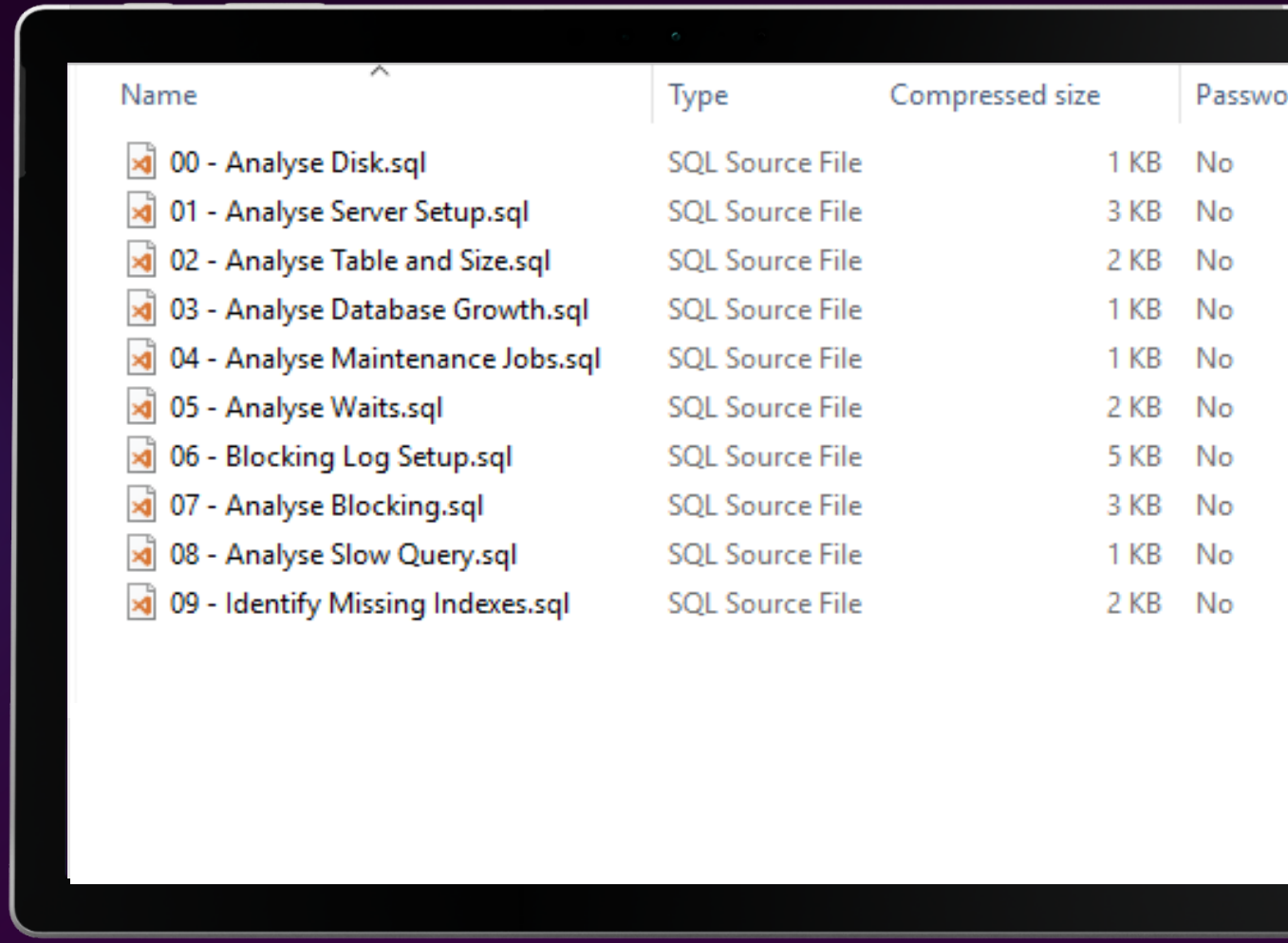
SOME BASIC THINGS TO CHECK

UNDERPINNING DATABASE

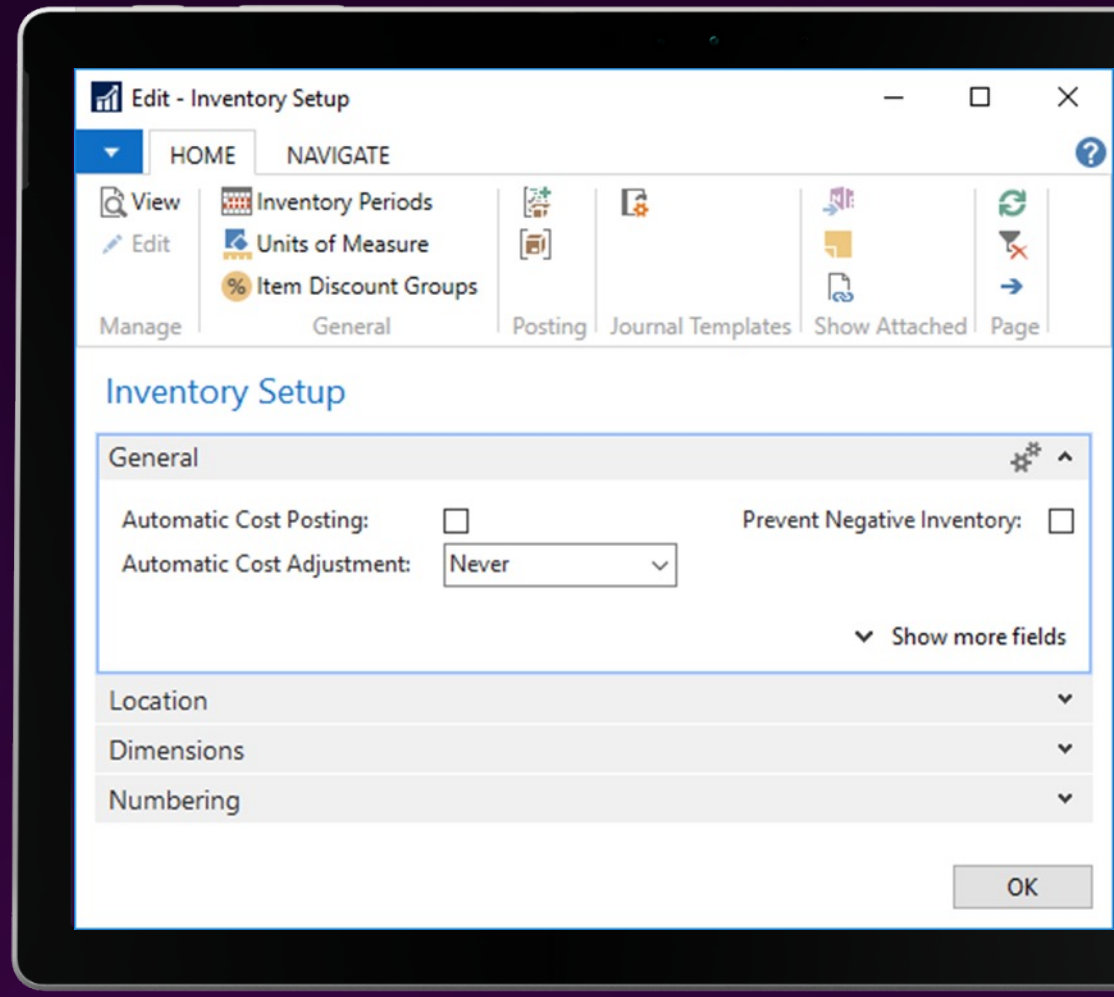
- Check your average read/write speed <25ms
  Raid Systems
- If SQL is slow .. NAV will be slow
- Slow read/write will increase the amount of locking
- Amount of locking will cause deadlocks
- Recent large customer example >40ms to <1ms

SQL SERVER SETUP

- SQL Maintenance Jobs for Rebuilding Indexes
- SQL Maintenance Jobs for Database & Log file backup
- Data & Log files on the same disk
- RAID level
  - SQL Scripts

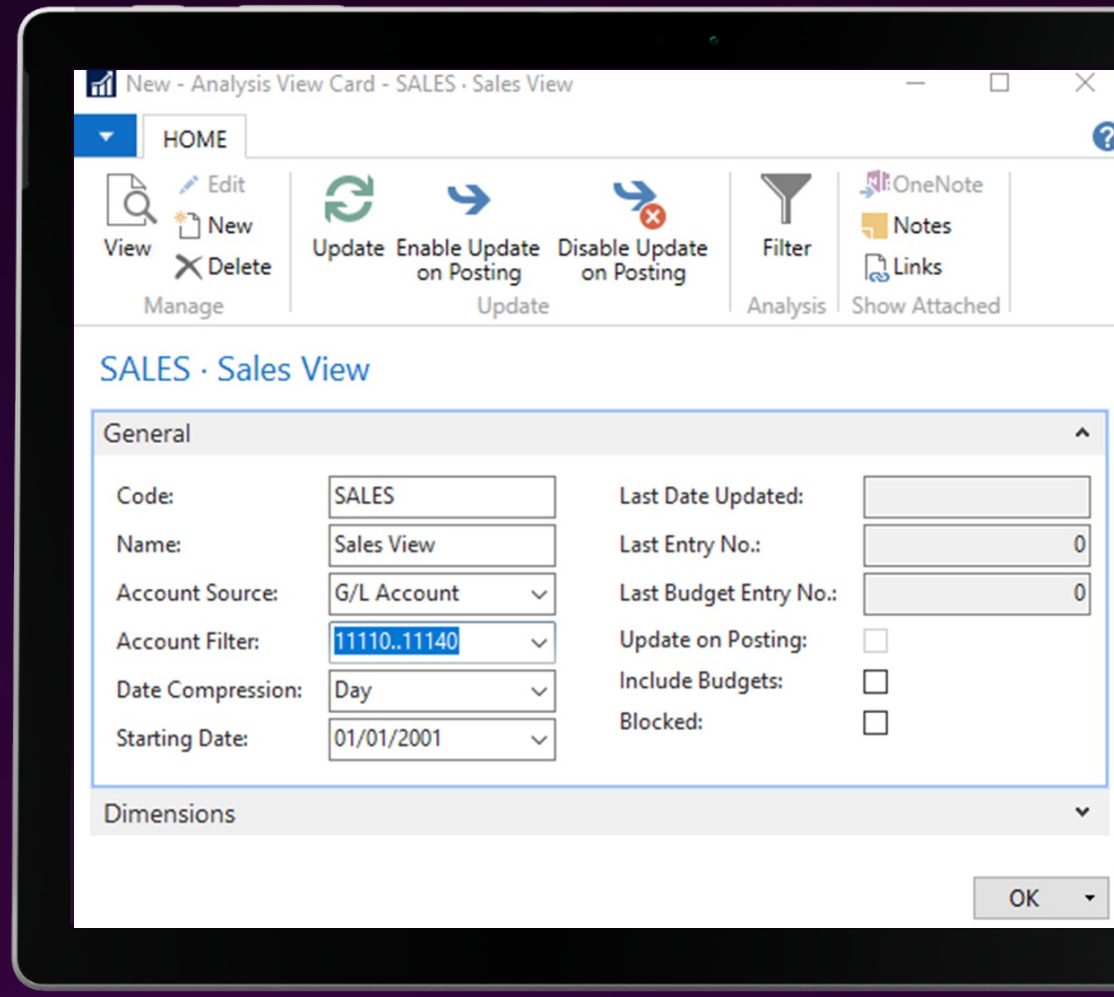


AUTO ADJUST COST
POST COST TO G/L



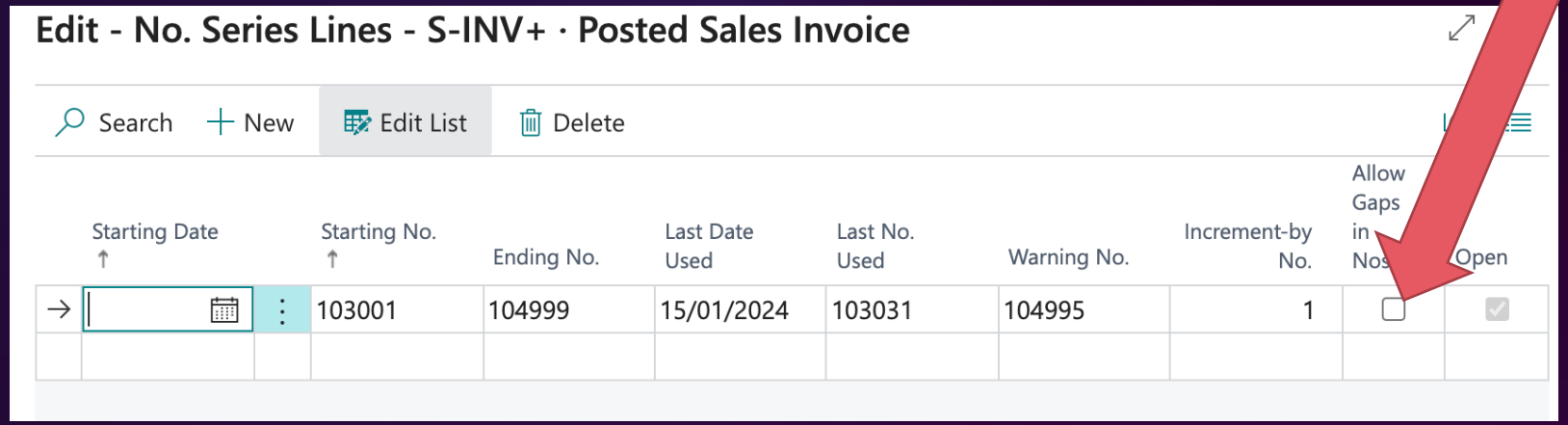
REPORTING

- Analysis Views – Auto Build DON'T !
- Lots of Power BI Consider mirror db
- Lots and lots of NAV reporting ?



Business Central only : (but can back retro fit No series improvemen

Allow Gaps in Nos - Business Central Only



REPORT ISOLATION – USE A READ ONLY COPY OF THE DATABASE

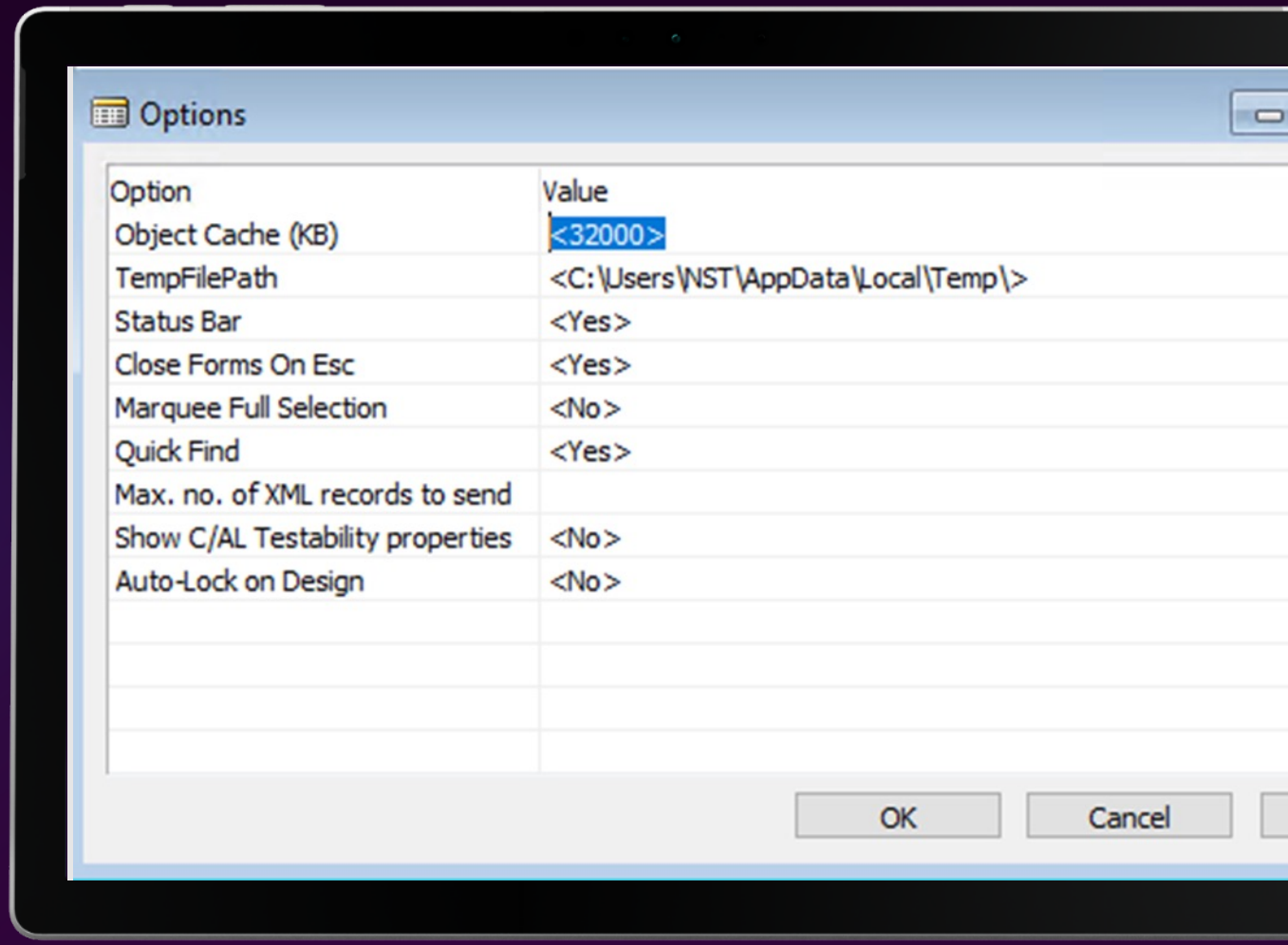
Read Scale out (BC 20 + only)

By setting this property on Pages, Reports, Queries
a mirror read only database is accessed rather than main db

https://docs.microsoft.com/en-us/dynamics365/business-central/dev-itpro/developer/properties/devenv-dataaccessintent-property

PAGES AND FORMS

- Flowfields on a slow page/form
- Check Object Cache on Classic (Tools/Options)



TECHNIQUES FOR SCALE

TECHNIQUES FOR SCALE

1. Batch Processing of Sales / Purchase Posting & Releasing
2. Batch Processing of Warehouse Registering
3. Application code review and enhance (e.g. No. Series)
4. Archiving / compression
5. Offline Picking (Hand Held)
6. Use BI for reporting
7. SQL Tuning Indexing
8. Use NAV Queries if possible
9. Careful use of SQL script for large updates

COMMON PERFORMANCE ISSUES

- Large Vendor - Get Receipt Lines (Currency and filtering)
- Large Customer - Get Shipment Lines (Currency and filtering)
- Fact box for “Unpaid Invoices”
- Over use of change log
- No. Series locking
- Large volume Item – Picking with unposted shipments
- Loading of new extensions (e.g. ILE – Primary Key)
- Virtual Data table
- Inefficient code !

HARDWARE

- Real tin vs Virtual
- Switches between DR
- Synchronous mode vs async DR
- Hardware solutions can hide lots!
- SD Discs
- Lots of memory
- Distance affects Classic and Windows Client more than Web Client
- Network speed affects Classic
- Separate App Servers (2013 onwards)
- Interesting SQL Azure use (Large transactions)

RECENT SUCCESS

- Customer A
  - Code optimization
  - Report processing 100K entries every day
  - Add index – 15 hours to 3 hours
  - Group/sum entries based on couple fields – 3 hours to 45 minutes
  - Replace logic loop for Query – 45 minutes to 30 seconds
- Customer B
  - Performance checks of NAV and performance logs.
  - Asked hosting company for performance logs but they did not indicate nothing was wrong with hardware
  - TNP ran our own performance counters - > APP server ok, SQL pointed to SAN Disk issues
- Customer C
  - Import excel was slow and was crashing NAV
  - 100K jnl imports
  - Review and ended up reviewing MS bug fixes – applied to bespoke code and sorted the issue
- Customer D
  - Issues with memory on a service
  - Memory dump from the service
  - Tested based on the information – lead to discovering incorrect setup of a single scanner
-

THINGS TO DO

- Performance Checklist
- Collect information
- Analyse

QUESTIONS?

BC MAINLY BUT INTERESTING

https://docs.microsoft.com/en-us/dynamics365/business-central/dev-itpro/performance/performance-overview

DON'T FORGET TO RATE THIS SESSION IN THE USER DAY APP