



Partner Ready Software

Gary Winter



Eric Wauters



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DDC is Three Years young!



About Me

Mark Brummel



15 Years of NAV Experience

MVP Since 2006

Co-Founder of Dutch Dynamics Community

Co-Founder and CEO of Partner Ready Software

Freelance NAV Specialist since 2006

About Partner Ready Software

Partner
Ready
Software



Partner Ready Software



Started in 2010 as thinktank for NAV cloud solutions

Community efforts since 2011 on NavTechDays & Directions

New and fresh ideas on structuring repeatable NAV solutions

Design software that can be understood and maintained by others

Design software that can be understood and maintained by others

Closely linked to Microsoft, yet independant



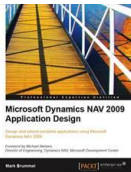
What's new

Dynamics NAV 2013 R2



Mark Brummel

brumme!
Dynamics Services



Agenda

**"In" Office 365
&
"On" Azure**

Multi Tenancy

Web Client

**Other
Improvements**

Q & A

Microsoft Dynamics NAV 2013 R2

"in"



Office 365

"on"



Windows Azure

What Do You Think?

Why Office 365?

Office 365



Product differentiation

A business solution

Revenue

A Value add opportunity



To get running with Office 365 you and your customers should NOT:

Office 365



Setup Exchange

Setup Lync Server

Setup SharePoint

You can:

Install On-prem versions of office products

Microsoft Dynamics NAV 2013 R2

"in"



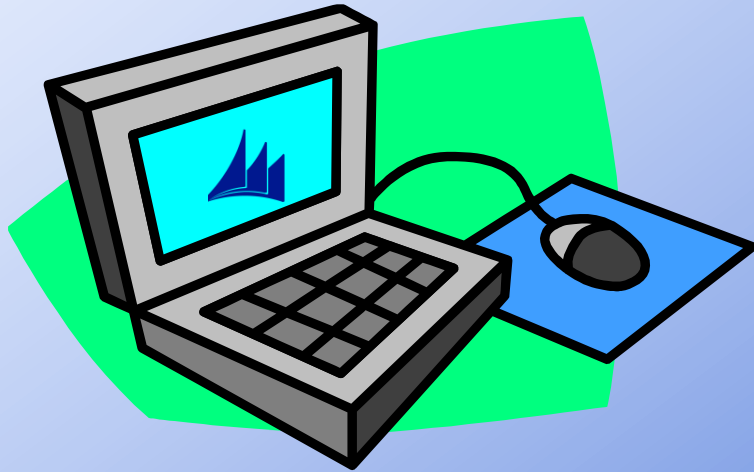
Office 365

"on"



Windows Azure

What you need



PC with Demo Install of
Microsoft Dynamics NAV 2013R2



Office 365 account (or trial)

Get it at <http://office.microsoft.com/en-us/business/>
or <http://www.microsoftofficedemos.com>

Steps

Prepare NAV

Install and configure
Web Client.
Rename CRONUS
Company

Prepare IE

Add SharePoint site
to trusted sites.
Enable Display
Mixed Content.

Prepare O365

Download app.
Create app catalog.
Register app.
Upload app.

Install App/Parts

Add an app, trust it.
Launch full screen
app.
Edit Page, add app
parts, configure app
parts.

Doc. Storage

Setup Online
Document Storage
Configuration

Integration with Office 365

SharePoint



Provider Hosted Apps for SharePoint

NAV pages integrated as web parts in SharePoint

Single sign-on experience

Data integration through ODATA and BCS

Sharing and storing of NAV documents in SharePoint

Excel



Export to Excel Web App from the NAV Web Client

Print to Excel from NAV reports

Writable ODATA web services for 2-way integration with Excel*

PowerPivot and PowerView

Word



Export to Word App from the Web Client

"Agave" Word plug-in for integrating NAV data into Word documents (Future releases)

Print to Word from NAV reports (NAV "Crete")

Doc. reports (NAV "Crete")

Social



Automatic Lync & Skype federation (Future releases)

Lync / Skype communication between enterprises and SMB customers (Future releases)

Lync / Skype presence in NAV Web Client (Future releases)

Yammer integration (Future releases)



Common look and feel, dashboard experience
Easy business insight, decision making and collaboration
Low learning curve in transition between NAV and Office 365
Unifying end-to-end online experience between the two services

*Once writable ODATA is available in O365, estimated in near future updates



Partner Ready Software

Demo



- Microsoft Dynamics NAV 2013 R2

Office 365

OutlookCalendarPeopleNewsfeedSkyDriveSitesAdmin

Christian Heide Damm

HomeSales OrdersBIApprovalsBalance StatementsEDIT LINKS

101005 · John R. Haddock Insurance Co.

HOME

ACTIONS

NAVIGATE

LINE

FUNCTIONS

ORDER

MANAGE

Close

View

Edit

New

Release

Reopen

Post..

Post and Print..

Test Report..

Copy Document..

Order Promising

Statistics

Assembly Orders

Archive Document

Shipments

Invoices

Order Confirmation..

Notes

Links

Previous

Next

101005 · John R. Haddock Insurance Co.

General

No.101005Document Date1/8/2015

Sell-to Customer No.30000Requested Deliver...

Sell-to Customer Na...John R. Haddock Insurance Co. XExternal Document...

Sell-to CityManchesterSalesperson CodePS

Posting Date1/23/2015StatusReleased

Order Date1/8/2015

Sell-to Customer...

Customer No.30000

Quotes0

Blanket Orders0

Orders5

Invoices0

Return Orders0

Credit Memos0

Pstd. Shipments5

Pstd. Invoices2

Pstd. Return Receipts0

Pstd. Credit Memos0

Sales Line Details

Item No.1920-S

Availability3

Substitutions0

Sales Prices0

Sales Line Discounts1

Notes

Lines

Type	No.	Description	Location Code	Quantity	Qty. to Assemble to Order	Res. Qs.
<input checked="" type="checkbox"/> Item	1920-S	ANTWERP Conference T...	RED	4		
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						
<input type="checkbox"/>						

WS
activate Windows.

What did we see

Integration with...



Single Sign On Office 365 – Using NAV authentication

Sharepoint Integration – Works On Prem

Dynamics NAV Can be anywhere – On Azure, On Prem...

Using Excel WebApp

Does not use O365 data – No replacement for Outlook Integration

Readiness

<https://mbs.microsoft.com/partnersource/training/news/MSDNAV7GettingReady>



Microsoft Dynamics NAV 2013 R2

Multi Tenancy

Multi Tenancy

Challenge,
Vision,
Key Principle

One cloud with 10,000 tenants only occasionally accessing the system
“Repeatable business scenario”



To enable repeatable and scalable hosting of the NAV with an attractive COGS (cost of goods sold)

Shared Resources



Maintaining
Separation of Data

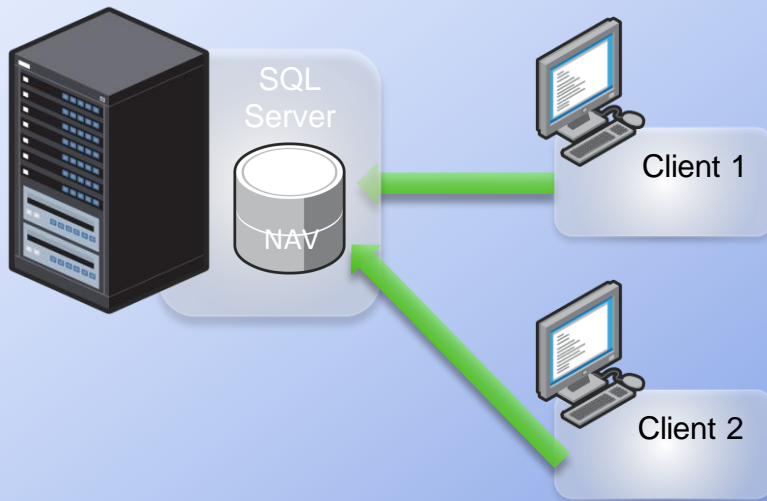


Efficient Management



Architectural changes

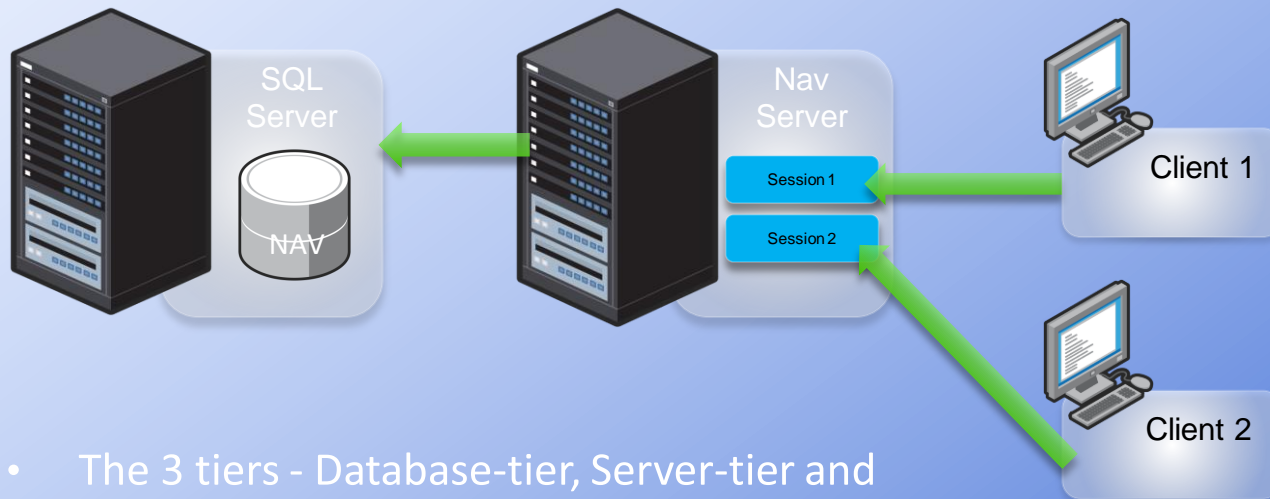
Microsoft Dynamics NAV 5 Overview



- Client handles everything but storage of data

Architectural changes

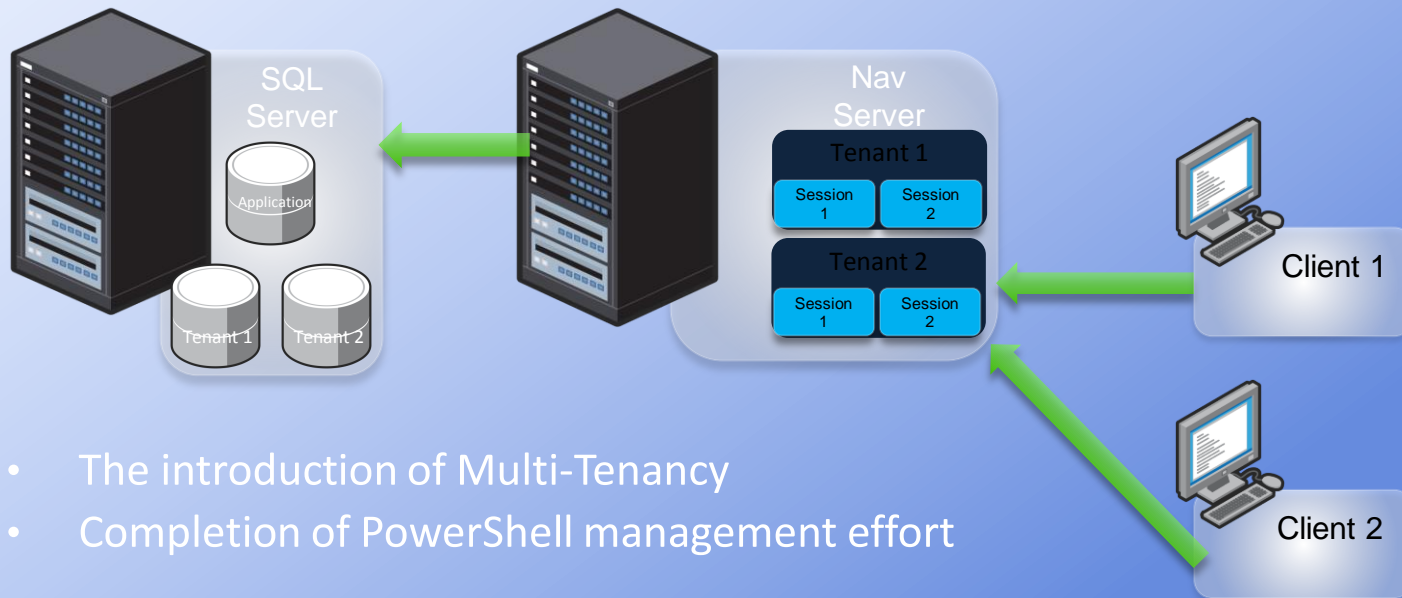
Microsoft Dynamics NAV 2009 & 2013 overview



- The 3 tiers - Database-tier, Server-tier and Client-tier can be combined on same box
- With few exceptions, code execution only happens on the server-tier
- Multiple server-tiers can be deployed in large installations

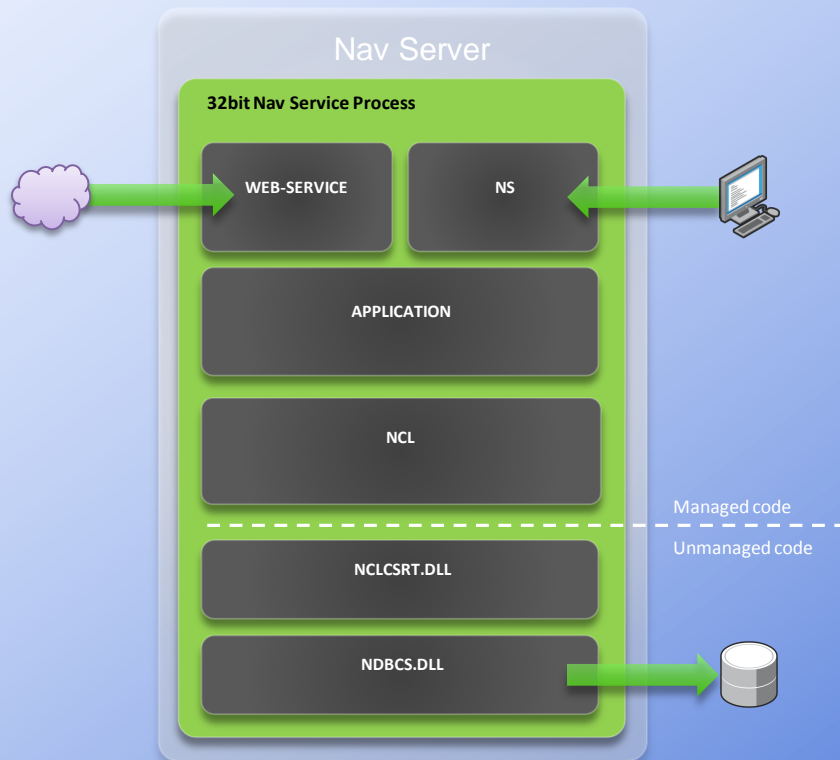
Architectural changes

Microsoft Dynamics NAV 2013 R2 overview



Architectural changes

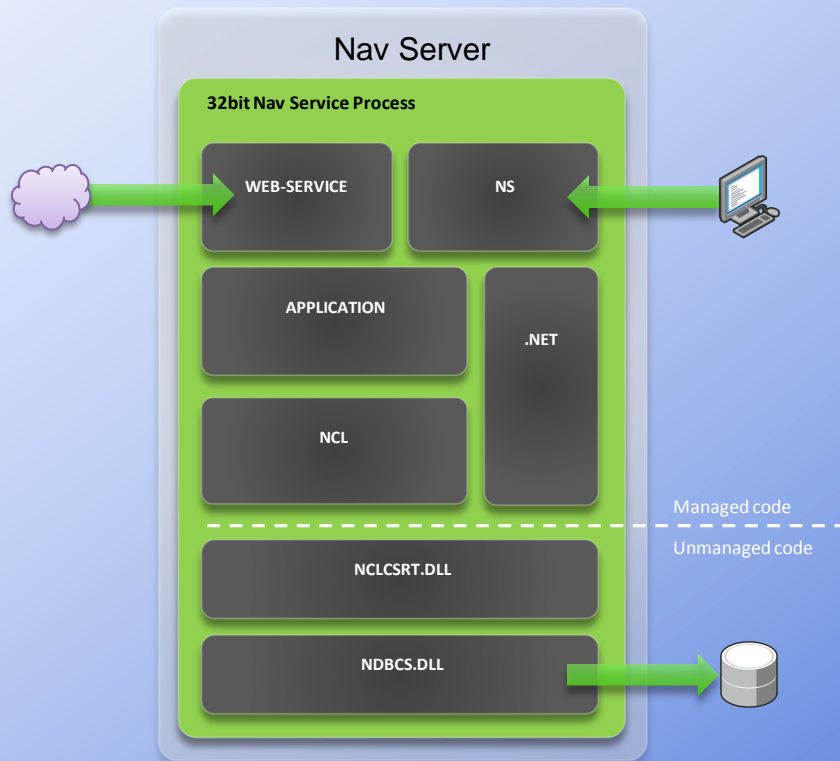
Microsoft Dynamics NAV 2009/2009 SP1 architecture



- Web services are dynamic – mark a page/codeunit as published and it will appear as WSDL ready for use
- Parallel deployment of RTC and classic clients allowed
- NCLCSRT and NDBCS contains code shared with the classic stack

Architectural changes

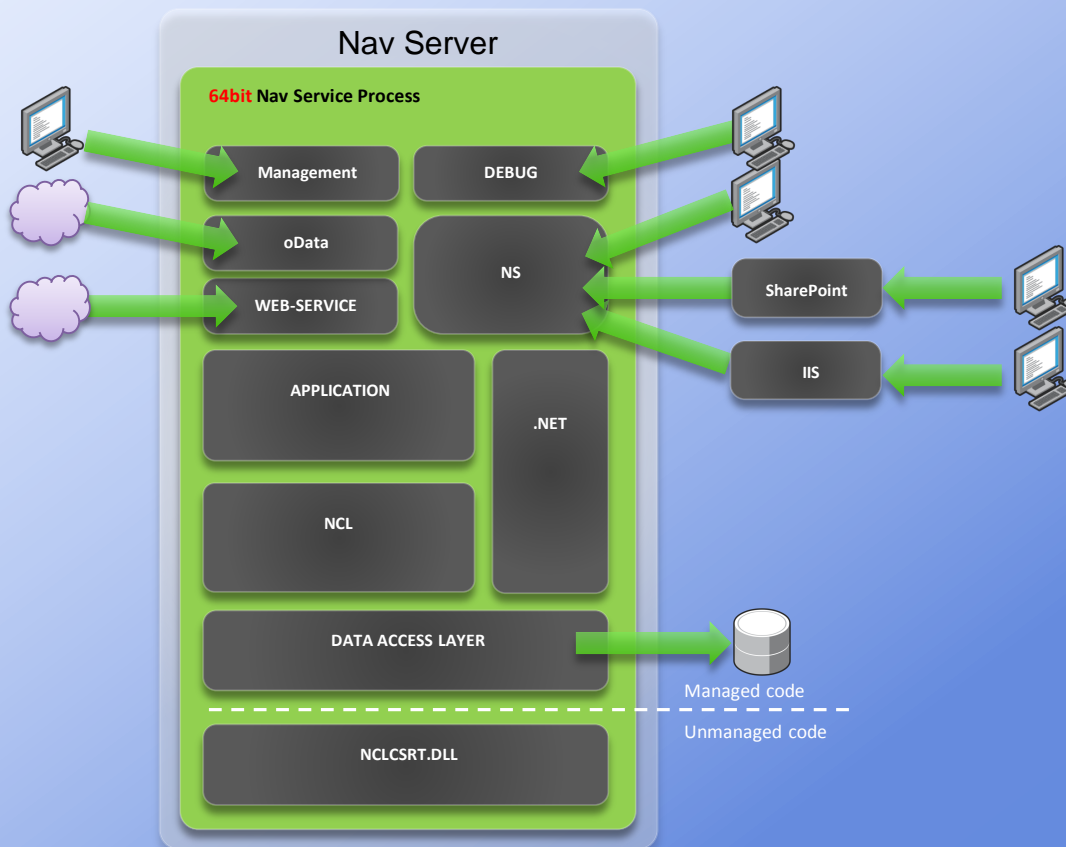
Microsoft Dynamics NAV 2009 R2 architecture



- .NET allows loading of any assembly
- CLR functionality is available from C/AL code

Architectural changes

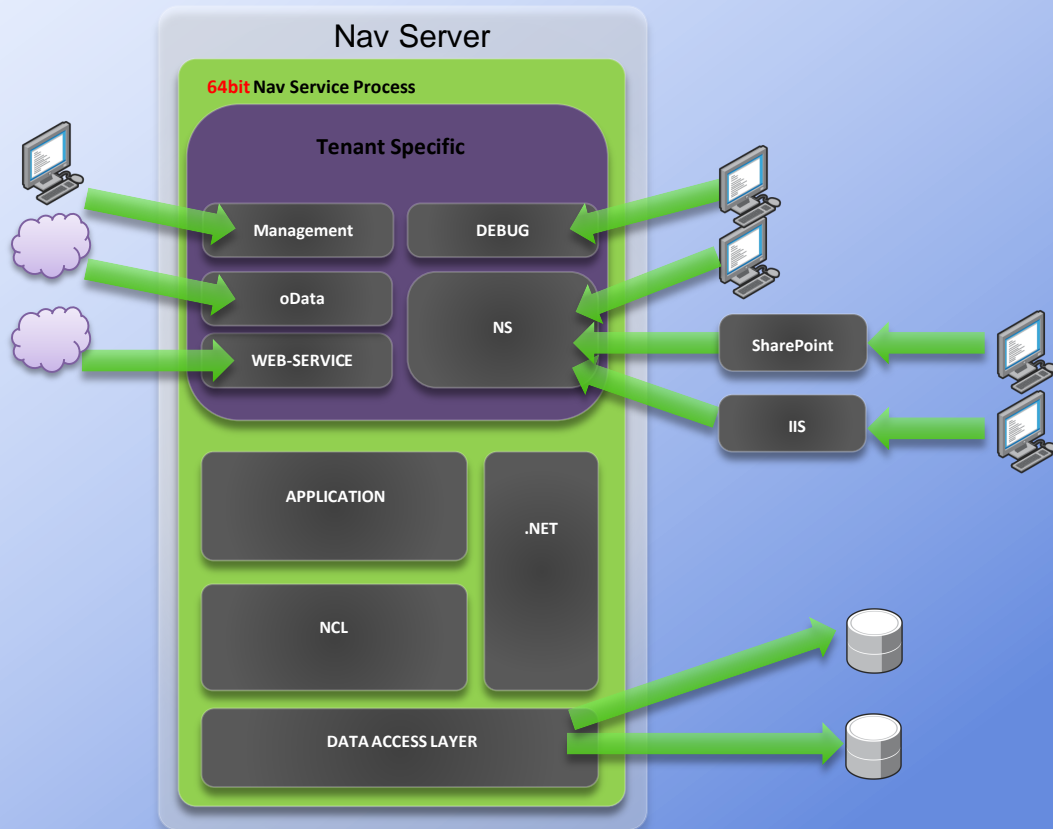
Microsoft Dynamics NAV 2013 architecture

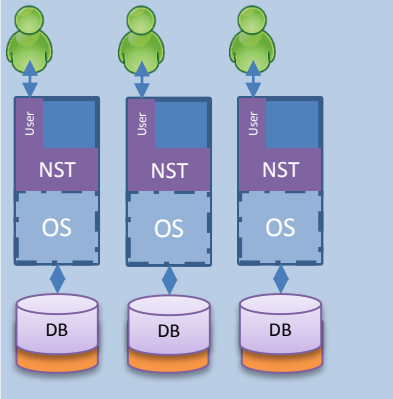
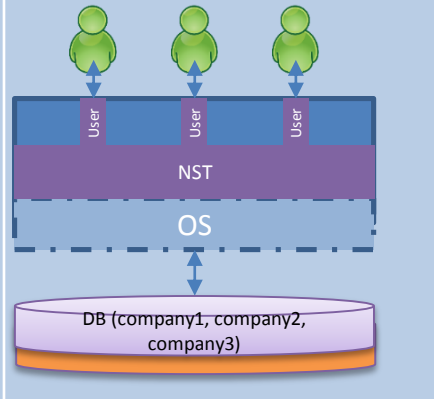
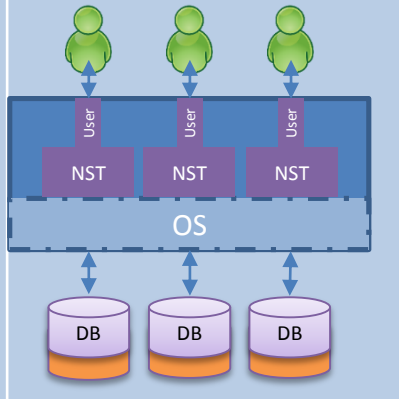
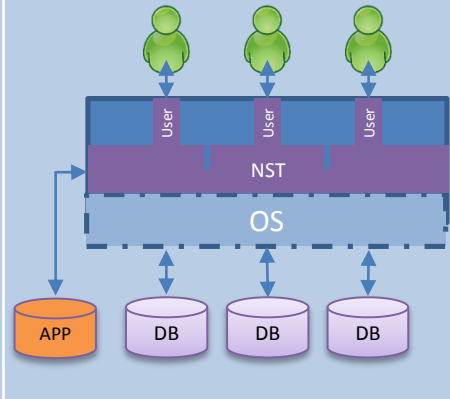


- New Client Types
- New Endpoints
- oData allows e.g. PowerPivot to load data directly from NAV
- Debugging of live server possible
- 64bit
- Data access in managed code, introducing Queries
- Unicode data
- Connection Pooling

Architectural changes

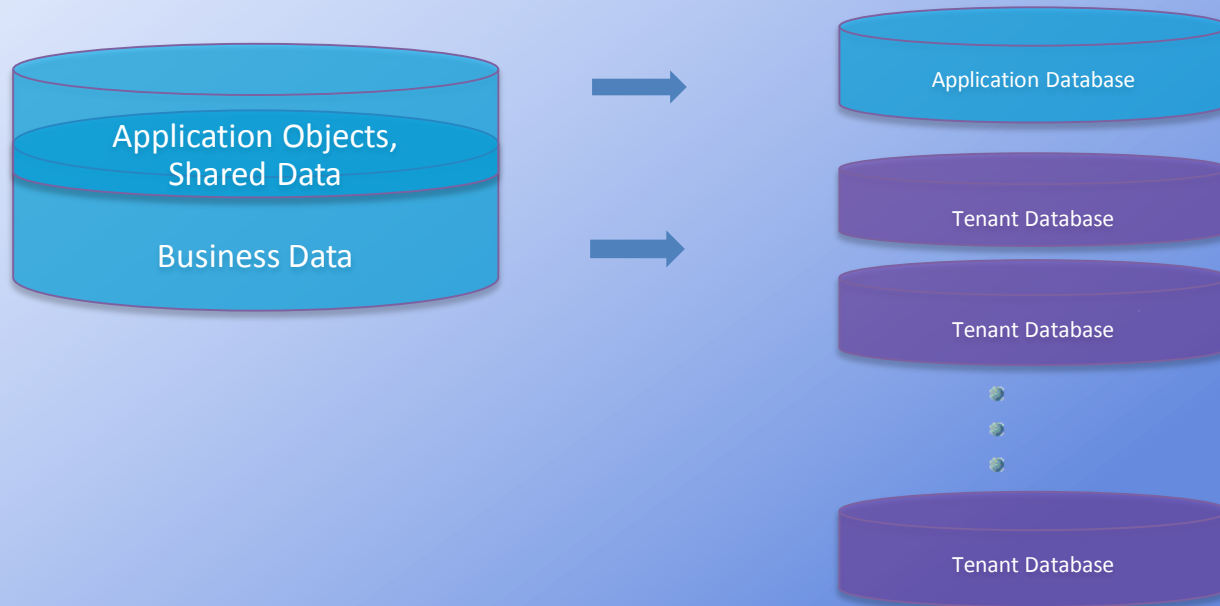
Microsoft Dynamics NAV 2013 R2 architecture



	Single-instance	Multi-company	Multi-instance	Multi-tenant
Visual				
Pros	Full OS level isolation Each customer gets their own "box"	Lowest resource consumption Easy upgrade and management	Low resource consumption Easy upgrade of platform Full isolation	Lowest resource consumption Easy upgrade of platform and management Full isolation
Cons	No shared resources = expensive	No database isolation No middle tier isolation Single point of failure for multiple tenants	NST consumes memory whether the tenant user is connected or not	No process level isolation Single point of failure for multiple tenants
Recommended when	Each Individual VM needs special LOB software / configuration	Users only read data, hence no writing and processing isolation is required Data is shared between companies	Low resource consumption and full isolation are required, while maintaining process level control of tenants	Lowest resource consumption and full isolation is required
Memory	OS ~ 400MB, NST ~ 200MB, User ~20MB	OS ~ 400MB, NST ~ 200MB, User ~20MB	OS ~ 400MB, NST ~ 200MB, User ~20MB	OS ~ 400MB, NST ~ 200MB, User ~20MB
Shared memory	none	OS, NST	OS	OS, NST

Multitenant Server

Separating Application and Tenant Data



Dynamics NAV system tables

Core Application

Application
Support

Configuration



Personalization

Users

Data Sharing &
Tracking



Partner Ready Software

Separating Shared Data

Shared App

Tenant data



Object	Company
Object Tracking	Page Data Personalization
Permission Set	Active Session
Debugger Breakpoint	Access Control
Debugger Watch	Session Event
Database Key Groups	Document Service
Send-To Program	User
Style Sheet	User Property
Chart	Device
Web Service	User Default Style Sheet
Client Add-in	Server Instance
Object Metadata	User Personalization
Resources	User Metadata
Profile	Record Link
	Permission

Multitenancy - Key Principles

Shared Resources



Zero overhead per tenant

One shared application, application cache

SQL Connection pooling cross tenants

Shared administration data

Cross tenant memory distribution

Multitenancy - Key Principles

Maintaining
Separation of data



One database per tenant, containing only the tenant's business data

Protection of application database, read-only by default

Protection of application IP

Licenses can be individual or shared

Easier data management

Multitenancy - Key Principles

Efficient Management



Use Powershell for all tasks

Apply platform and application updates, hotfixes

Scriptable deployment of new servers

How-To provisioning, multi-tenancy and upgrade scripts included

Individual backup of tenant data

Multitenancy – choice is yours

Configuration, Management

The NST can run in two different modes, single-tenant mode which is backwards compatible or multi-tenant mode which allows new capabilities



Configuration is done by use of cmdlet's, using the management console or directly editing the customsettings.config or tenants.config files

Single-tenant mode



Multi-tenant mode



Managing the server
using Cmdlets



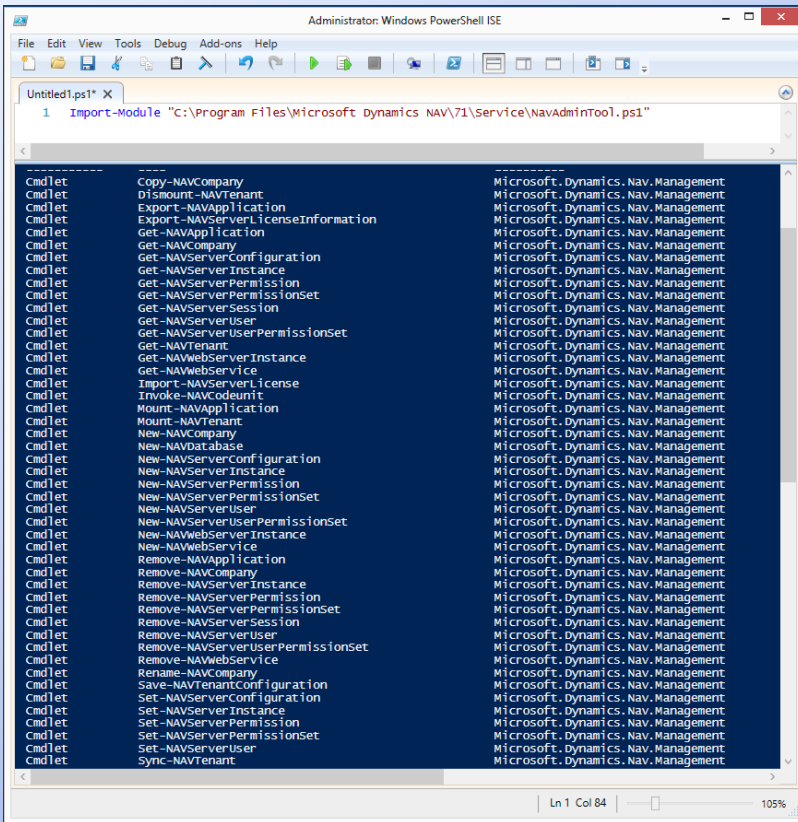
Dynamics NAV is fully Power Shell enabled

- 47 built-in management cmdlets

- Company management
- Permissions management
- User management
- License management
- Server instance management
- Web Server instance management
- Tenant management
- Application management

- Microsoft Management Console for Microsoft Dynamics NAV 2013 R2

- Extra options to configure multitenancy
- Extra server configuration options



The screenshot shows the Windows PowerShell ISE interface. The title bar reads 'Administrator: Windows PowerShell ISE'. The menu bar includes 'File', 'Edit', 'View', 'Tools', 'Debug', 'Add-ons', and 'Help'. The toolbar contains various icons for file operations and execution. The command prompt shows the following command being executed:

```
1 Import-Module "C:\Program Files\Microsoft Dynamics NAV\71\Service\NavAdminTool.ps1"
```

The output of the command is a list of 47 cmdlets, each followed by the namespace 'Microsoft.Dynamics.Nav.Management'. The cmdlets are:

- Copy-NAVCompany
- Dismount-NAVtenant
- Export-NAVApplication
- Export-NAVServerLicenseInformation
- Get-NAVApplication
- Get-NAVCompany
- Get-NAVServerConfiguration
- Get-NAVServerInstance
- Get-NAVServerPermission
- Get-NAVServerPermissionSet
- Get-NAVServerSession
- Get-NAVServerUser
- Get-NAVServerUserPermissionSet
- Get-NAVtenant
- Get-NAVWebServerInstance
- Get-NAVWebService
- Import-NAVServerLicense
- Invoke-NAVCodeunit
- Mount-NAVApplication
- Mount-NAVtenant
- New-NAVCompany
- New-NAVDatabase
- New-NAVServerConfiguration
- New-NAVServerInstance
- New-NAVServerPermission
- New-NAVServerPermissionSet
- New-NAVServerUser
- New-NAVServerUserPermissionSet
- New-NAVWebServerInstance
- New-NAVWebService
- Remove-NAVApplication
- Remove-NAVCompany
- Remove-NAVServerInstance
- Remove-NAVServerPermission
- Remove-NAVServerPermissionSet
- Remove-NAVServerSession
- Remove-NAVServerUser
- Remove-NAVServerUserPermissionSet
- Remove-NAVWebService
- Rename-NAVCompany
- Save-NAVtenantConfiguration
- Set-NAVServerConfiguration
- Set-NAVServerInstance
- Set-NAVServerPermission
- Set-NAVServerPermissionSet
- Set-NAVServerUser
- Sync-NAVtenant

The status bar at the bottom indicates 'Ln 1 Col 84' and '100%' zoom.

Readiness

<http://www.waldo.be/2013/09/16/nav2013r2-readiness/>

Demo



- Microsoft Dynamics NAV 2013 R2



NAV 2013 R2 Web Client

The NAV 2013 R2 Web Client

Redesigned

Faster

“In” Office 365

Simplified
development

Redesigned

Modern UI Principles

Web Client



Pride in craftsmanship

Be fast and fluid

Authentically digital

Do more with less

Win as one

Faster

Faster

Optimized for speed of rendering

Reduced resource utilization on the server

Cheaper to host

“in” Office 365

“in” Office 365

Web Client

Modern UI Principles

Office 365 look and feel

Single Sign On

SharePoint App integration

Office 365 document storage

Export to Office web apps



Simplified
development

Simplified development

**JavaScript Add-
Ins**

**Code once,
display
everywhere**

**Modern
technologies**

**HighCharts in
the box**

**Many other
add-ins on the
market**

What's New in NAV 2013 R2

Modern Look

O365 experience

Image upload

Filtering on lists and pages

Improved Performance

Page Search

Sort on Column

Better error handling

HTML Extensibility

Help - tooltips



Dynamics NAV 2013 R2

Other Improvements

Other Improvements

Application

User Interface

Object Designer

Help Server

Monitoring

Application I – Cash Management

**Payment
Registration**

**Electronic
Payments**

**Bank
Reconciliation**

**XML Schema
builder**

96xx

**Co-Exists with
NL Localised
Functionality
Not integrated**

Object Number 12xx

Application II – Other Improvements

Incomming Documents

13x

Mini Apps

13xx

Recurring Sales Invoices

Report 172

Payment Registration

98x

VAT Clause

56x

Codeunit 12 - Redesign

User Interface

Metro Style

- Cues
- Icons

Interactive Sort

- Windows Client
- Web Client

Add-ins for Web Client

- Java Script
- Two types of charts

Shortcuts for more real estate

Object Designer

Dynamics Flat File XML Port

- Unbound
- currxmlport.BREA
KUNBOUND
- SEPA

C/AL

- GETURL
- TENANTID
- COPYCOMPANY

Reporting

- Previewmode
- Report Builder

Webservices

- **Writable
ODATA**

Version List

- **Extended
Length**

SetCurrentKey

No longer requires a Key defined in the Table

- Be aware of performance issues
- Check for incomplete keys

Help Server

Hosted Online

- IIS
-

Both Windows Client and Web Client

HTML Based

One server per client

Microsoft Dynamics NAV 2013 R2

Getting Started Community MSDN

Manage Your Business

There are certain business tasks that you perform frequently, such as offers to customers or creating invoices to sell and purchase products. Other tasks are less frequent, such as registering customers and products. The following table describes the different tasks, with links to the topics that describe them.

To	See
Create a sales quote where you offer products on negotiable terms before converting the quote to a	How to: Make Offers

Monitoring

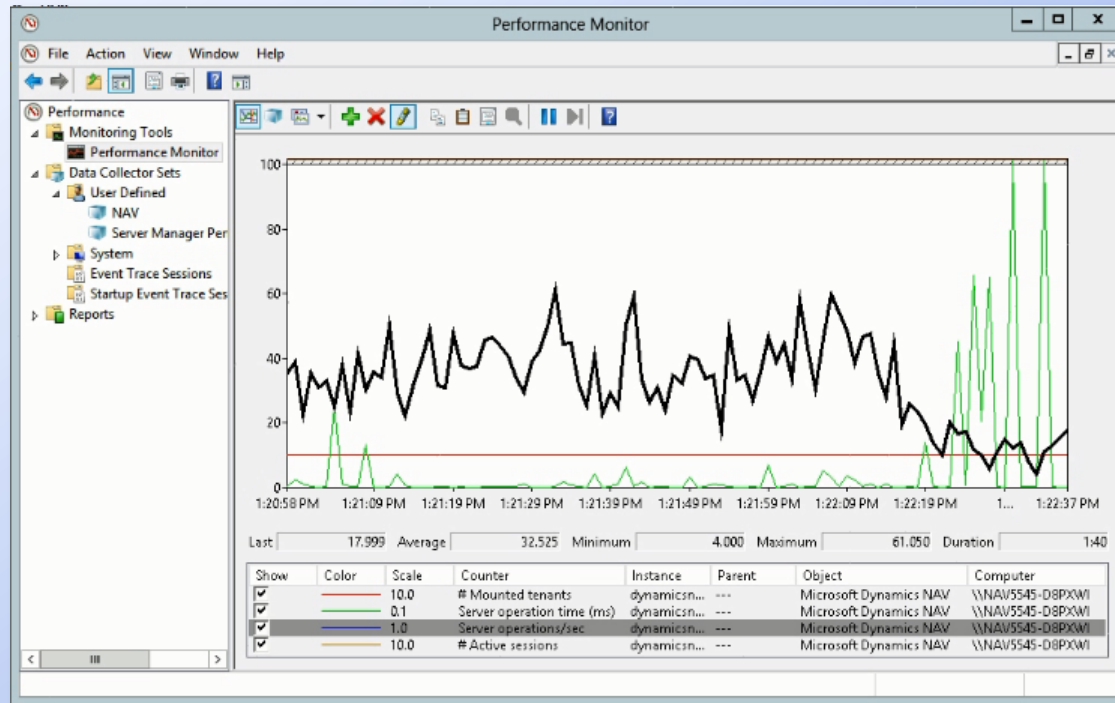
**Windows Perfmon
measuring**

**Management
Pack for System
Center**

Client Monitor

Q & A

Real-time Dynamics NAV Server monitoring



Average server operation time (ms)

Average duration of service operations on a Microsoft Dynamics NAV Server instance in milliseconds.

Active sessions

Number of active sessions on the Microsoft Dynamics NAV Server instance.

Mounted tenants

Number of tenants that are mounted on a Microsoft Dynamics NAV Server instance.

Server operations/sec

Number of operations on a Microsoft Dynamics NAV Server instance per second.

Microsoft Dynamics NAV 2013 R2 Management Pack for System Center



Discover

Virtual and physical computers running

- Microsoft Dynamics NAV Server
- Microsoft Dynamics NAV Web Server

Microsoft Dynamics NAV 2013 R2 Server instances
Microsoft Dynamics NAV 2013 R2 Web applications



Monitor

Manage

Environment-specific monitoring
Microsoft Dynamics NAV 2013 R2-specific monitoring
Statistics, Warnings, and Alerts
Starting and stopping services



Service

Better visibility and deeper insight
Accelerated problem resolution
Lower client support cost
Preemptive service

Accelerated Time to Resolution • Reduced Cost of Support • Better Control • Better Service



Monitoring with Microsoft System Center

The screenshot displays the Microsoft System Center 2012 Operations Manager web console. The left sidebar shows the 'Monitoring' tree with 'Server Instances' selected. The main area is divided into two panes. The left pane, titled 'Server Instances (9)', shows a list of instances with their states. The right pane, titled 'State view details', shows details for 'Microsoft Dynamics NAV 2013 Server Instances'. The bottom pane shows 'State Change Events (2)' with a table of events.

Server Instances (9)

State	Service Name
Critical	MicrosoftDynamicsNavS...
Critical	MicrosoftDynamicsNavS...
Critical	MicrosoftDynamicsNavS...
Healthy	MicrosoftDynamicsNavS...
Healthy	MicrosoftDynamicsNavS...
Healthy	MicrosoftDynamicsNavS...
Healthy	MicrosoftDynamicsNavS...
Healthy	MicrosoftDynamicsNavS...
Healthy	MicrosoftDynamicsNavS...

State view details

Microsoft Dynamics NAV 2013 Server Instances pr...

Property	Value
Display Name	MicrosoftDynamicsNavS...
Full Path Name	NAV-35348-01.corp.c...
Server Instance	Directions01
Database Server Name	NAV-35348-01
Database Name	Directions Database
Credential Type	Windows

State Change Events (2)

Time	From	To	Operational State
03-09-2013 10:37:35	✓	✗	The connection to SQL server cannot be established or is no longer usable.
02-09-2013 15:42:35	○	✓	The connection to SQL server is healthy.

Context

Dato og klokkeslæt: 03-09-2013 10:37:35 Beskrivelse: Server instance: DynamicsNAV71 Fatal Sql error. The connection can no longer be used

Logfilnavn: Application
Kilde: MicrosoftDynamicsNavServer\$DynamicsNAV71
Incidentnummer: 112
Niveau: 1
Logførende computer: NAV-35348-01.corp.cronus.com
Bruger: N/A

Incidentdata:
<DataItem type="System.XmlData" time="2013-09-03T08:37:35.6736261+00:00" sourceHealthServiceId="8391992D-1B39-44C9-85C2-3ABC1231BCE8">
<EventData>
<Data>Server instance: DynamicsNAV71 Fatal Sql error. The connection can no longer be used</Data>
</EventData>
</DataItem>





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