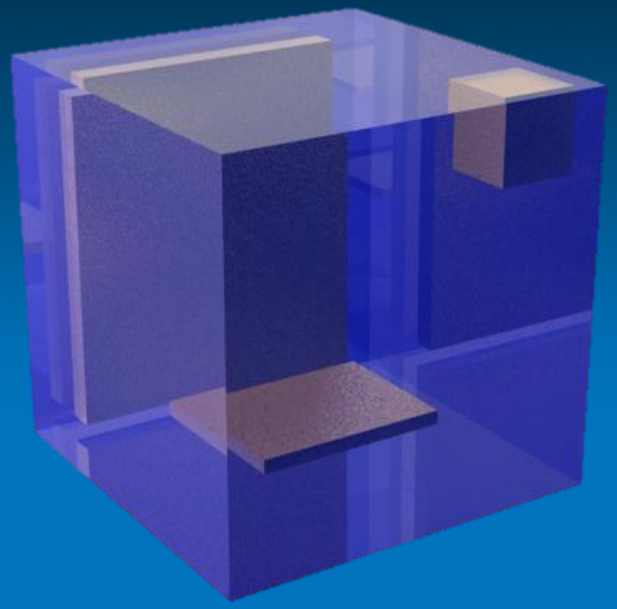
28 Weeks later -

How to scale-out your MS Business Intelligence Environment



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Sascha Lorenz (PSG)

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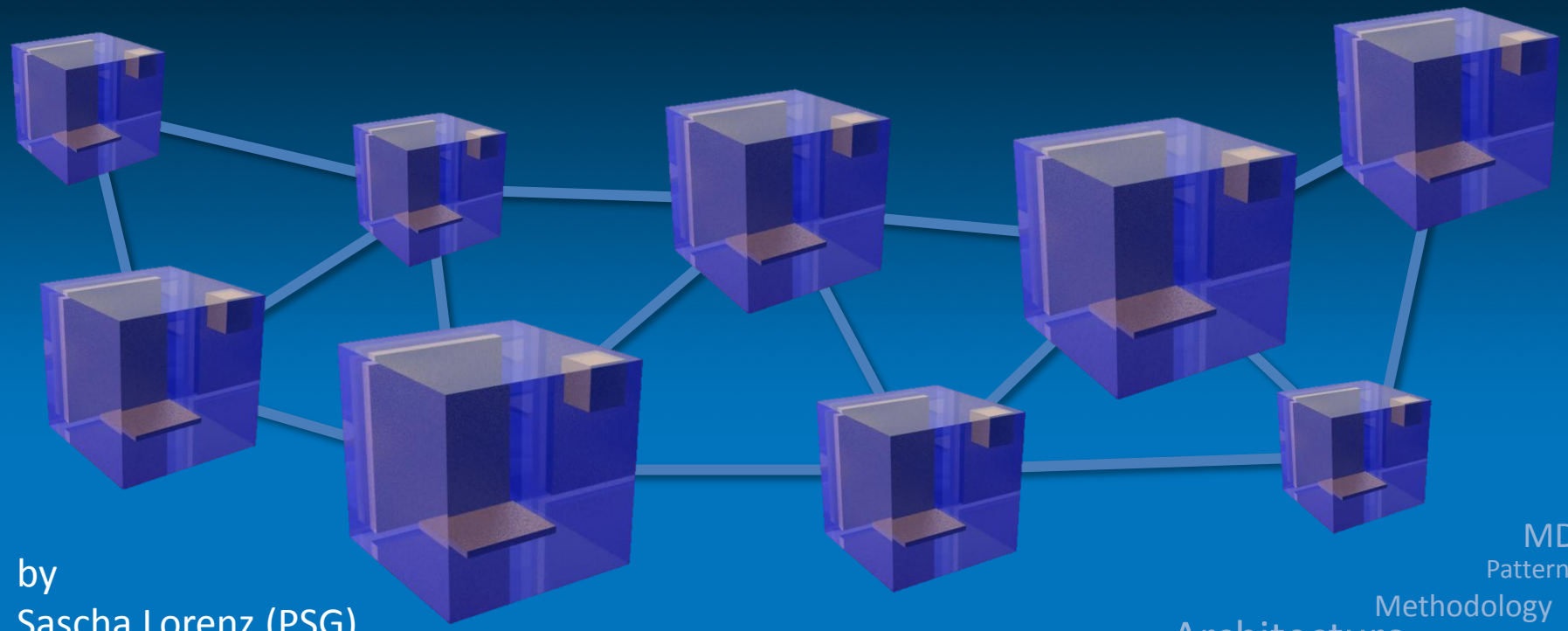
28 Weeks later -

How to scale-out your MS Business Intelligence Environment



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About me…

- Sascha Lorenz
- Principal Consultant, Coach & Trainer
- PSG Projekt Service GmbH, Hamburg
- Our Customers are German Federal Agencies, Shipping Companies and Banks (Fonds Administration & NPL)
- Engaged in German PASS Chapter (Hamburg/Bremen)

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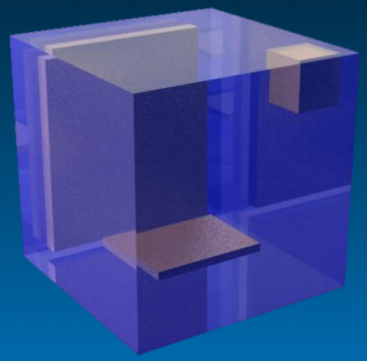
Scale-up



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Motivations/Challenges…

- Reuse Data (Structures…)
  - Master Data (Management)
    - Dimensions
  - Business Process Data
    - Fact Table / Measuregroup
- Heavy Workload!
  - Processing Power
  - Too many users
- High Availability
  - 24x7x365 – Globalization !

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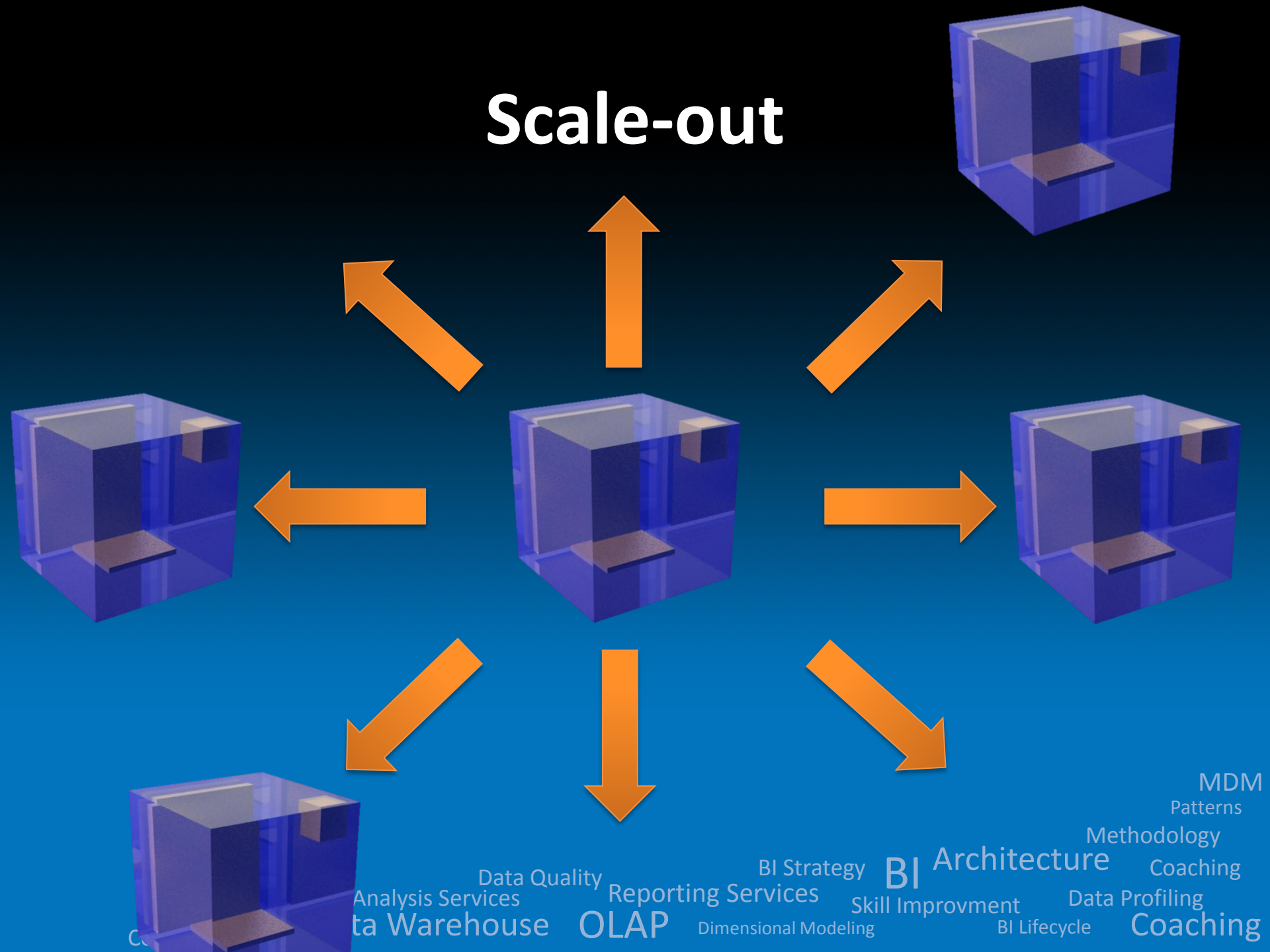
Scale-out



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Scale-out

Logical

- Linked Dimensions
- Linked Measuregroups

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Physical

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Fundaments

- Where is my SSAS Database?
- Who are you and what have you done with my SSAS Database?

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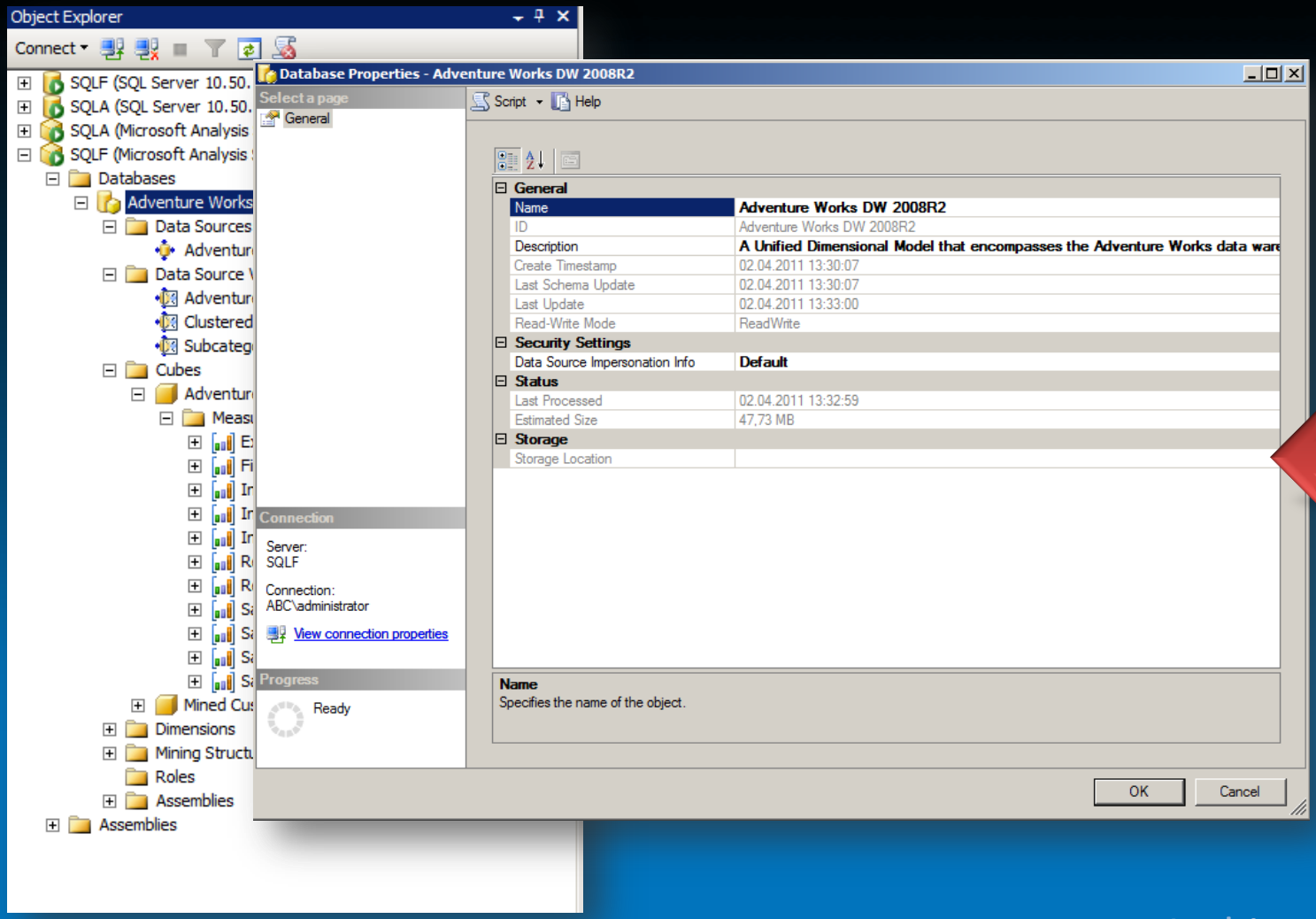

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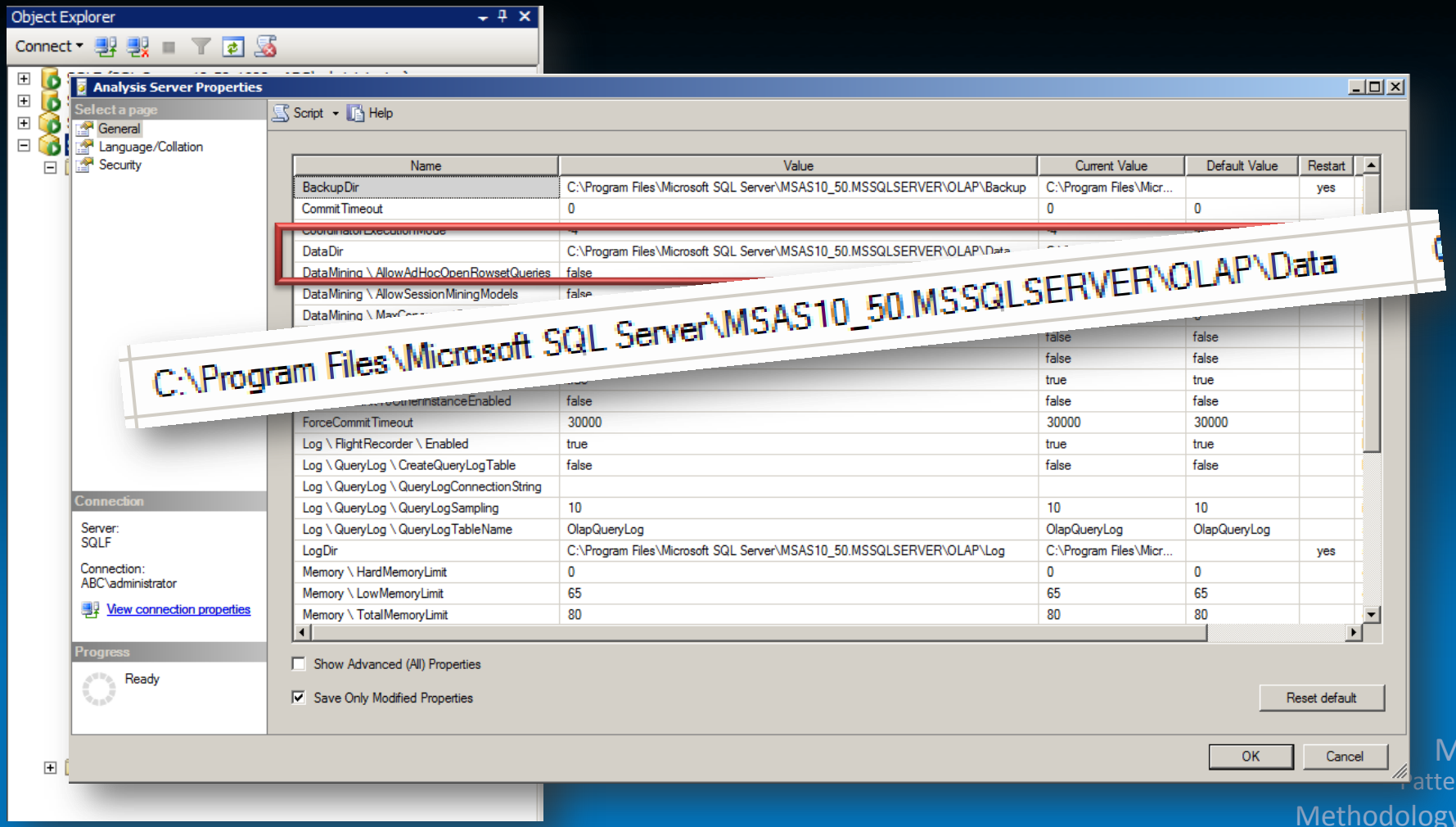

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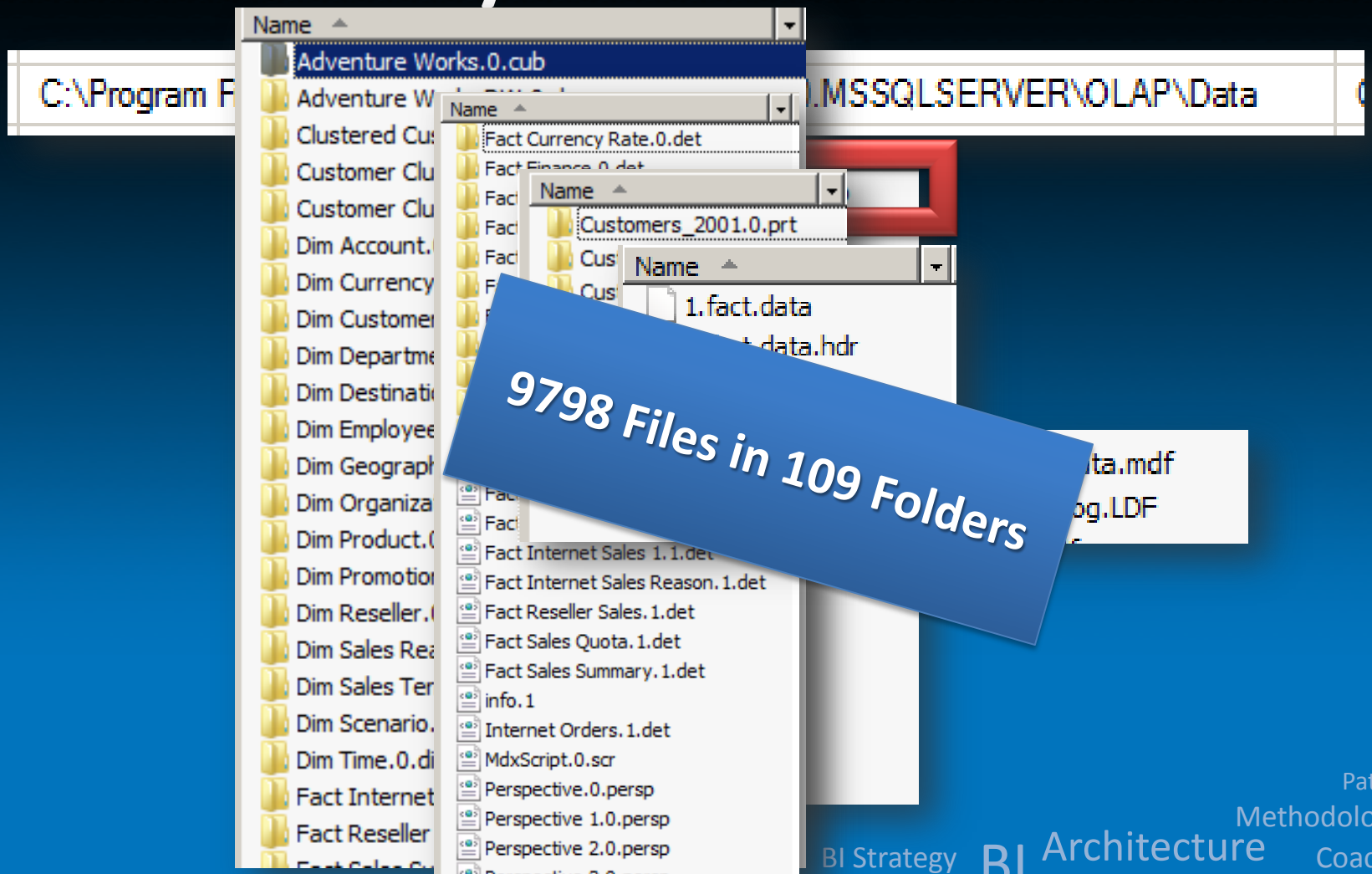
Who are you and what have you done with my SSAS Database?



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Demo
A quick look at a SSAS Database

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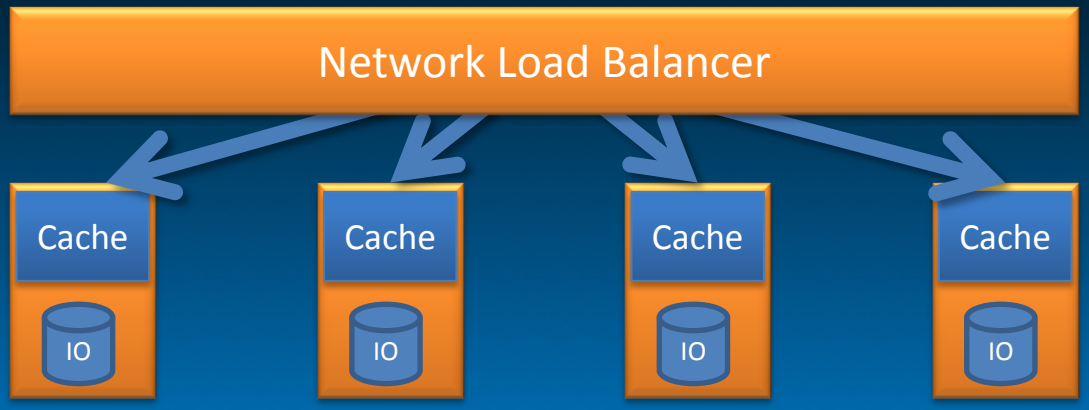
Backup & Restore…



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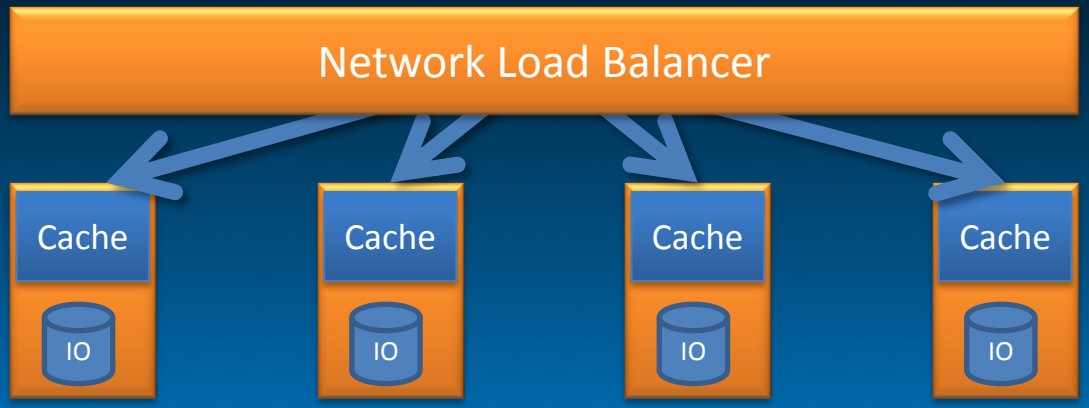
Detach/Attach



SSAS DB Folder…

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Detach/Attach in AMO

```
using Microsoft.AnalysisServices;

Server srv = new Server();
Database db;
srv.Connect("localhost");
if(srv.Databases.ContainsName("AMO Cube"));
 {
        listBox1.Items.Add("DB exists...");
        db = srv.Databases["AMO Cube"];

        db.Detach();
        listBox1.Items.Add("Detach...");

        srv.Attach(@"C:\Program Files\Microsoft SQL
                Server\MSAS10_50.MSSQLSERVER\OLAP\Data\AMO
                Cube.0.db",ReadWriteMode.ReadWrite);
        listBox1.Items.Add("Attach...");
 }

 srv.Disconnect();
```

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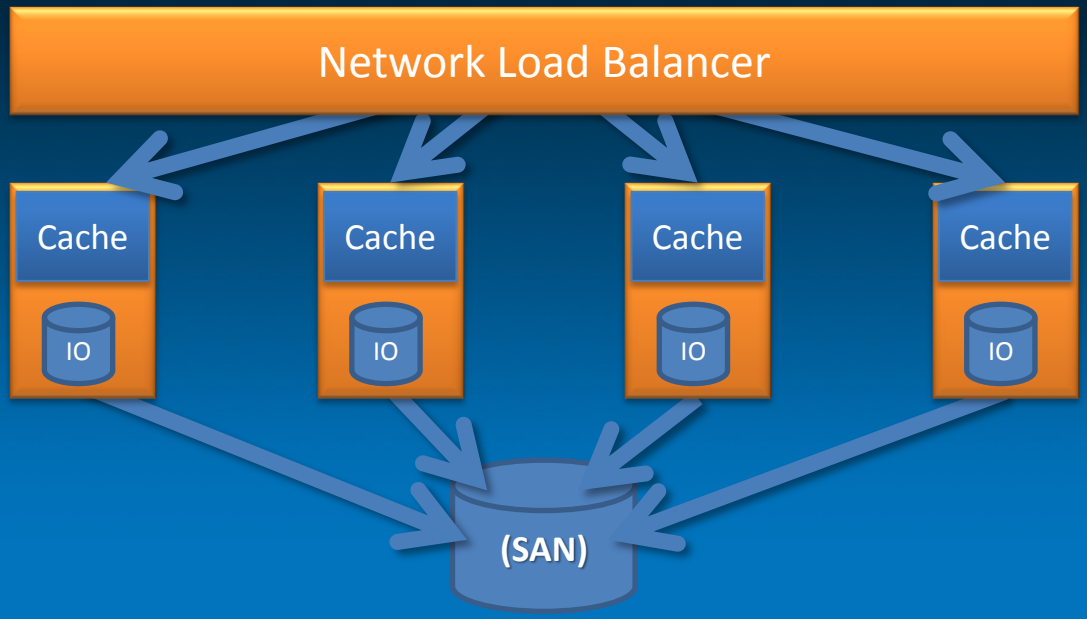
Shared Scalable Database



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Demo
Shared Scalable Database

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How to „move“ a SSAS Database?

- Simple *copy & paste* is
  „almost unmanageable“…

- Possible Answers:
  - Deployment Wizard
  - Synchronization

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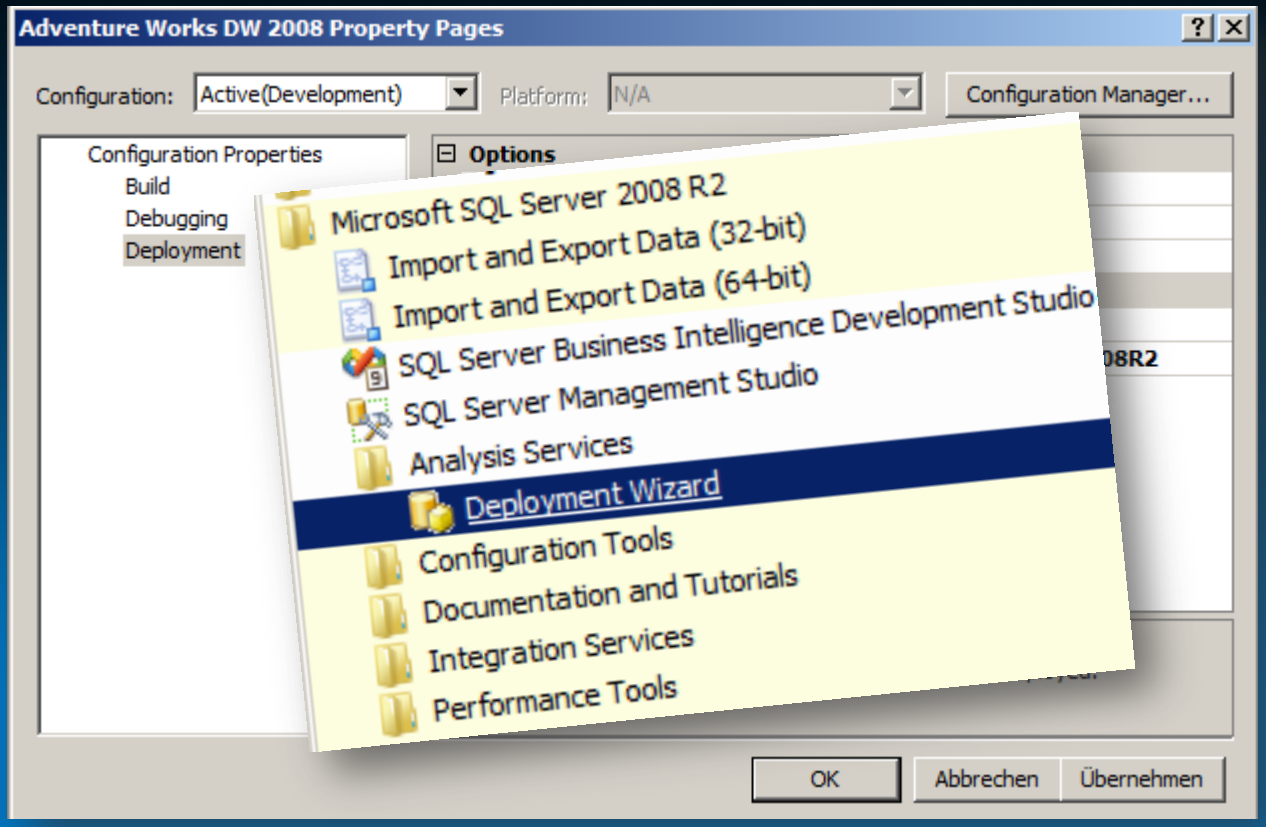
Deployment in BIDS ?



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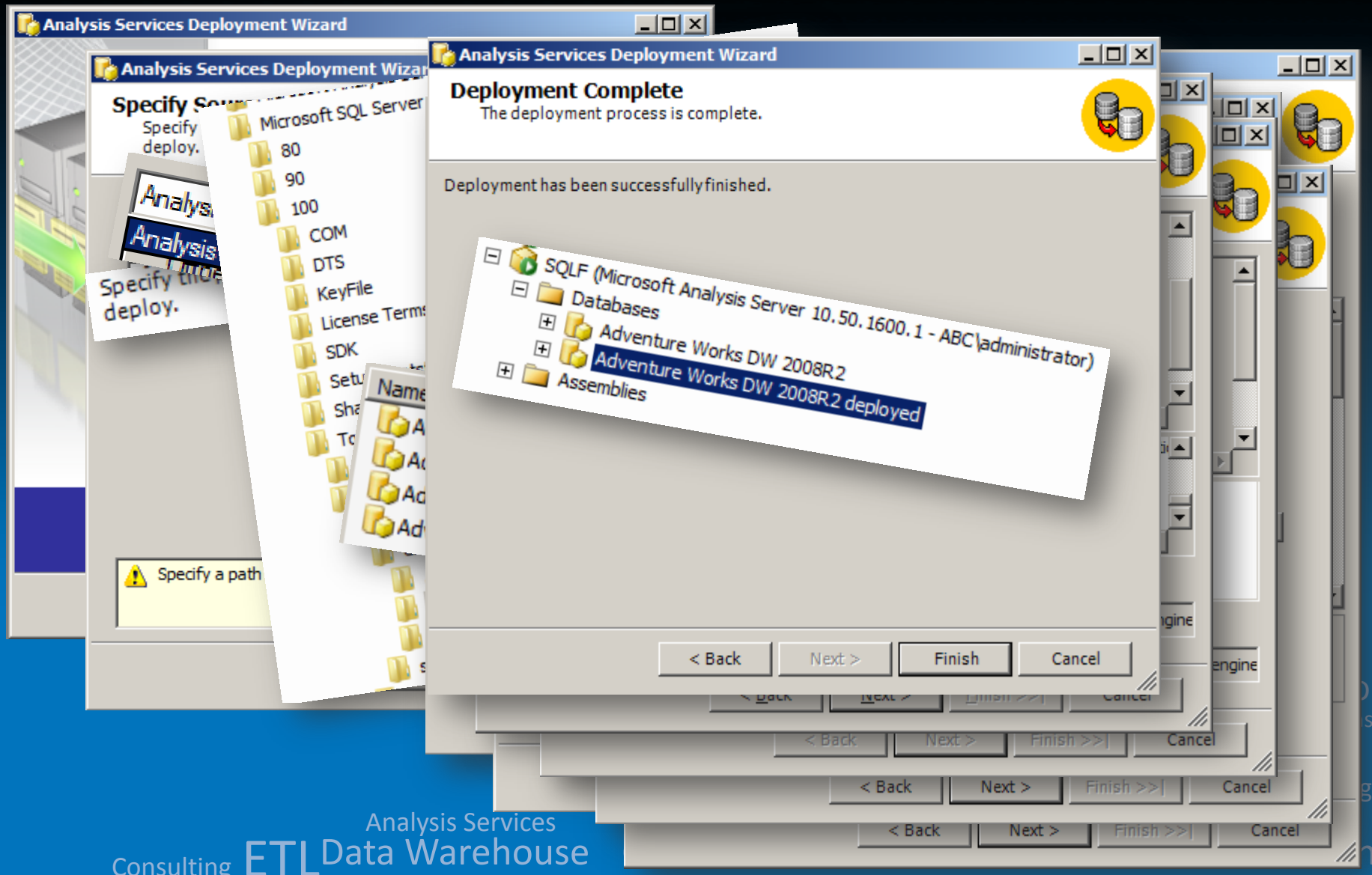
Deployment Wizard



Analysis Services
Consulting ETL Data Warehouse

Scale-out

Logical

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P

- Backup
- Copy (Detac… …h)
- Deployment
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XML/A
Scripting…

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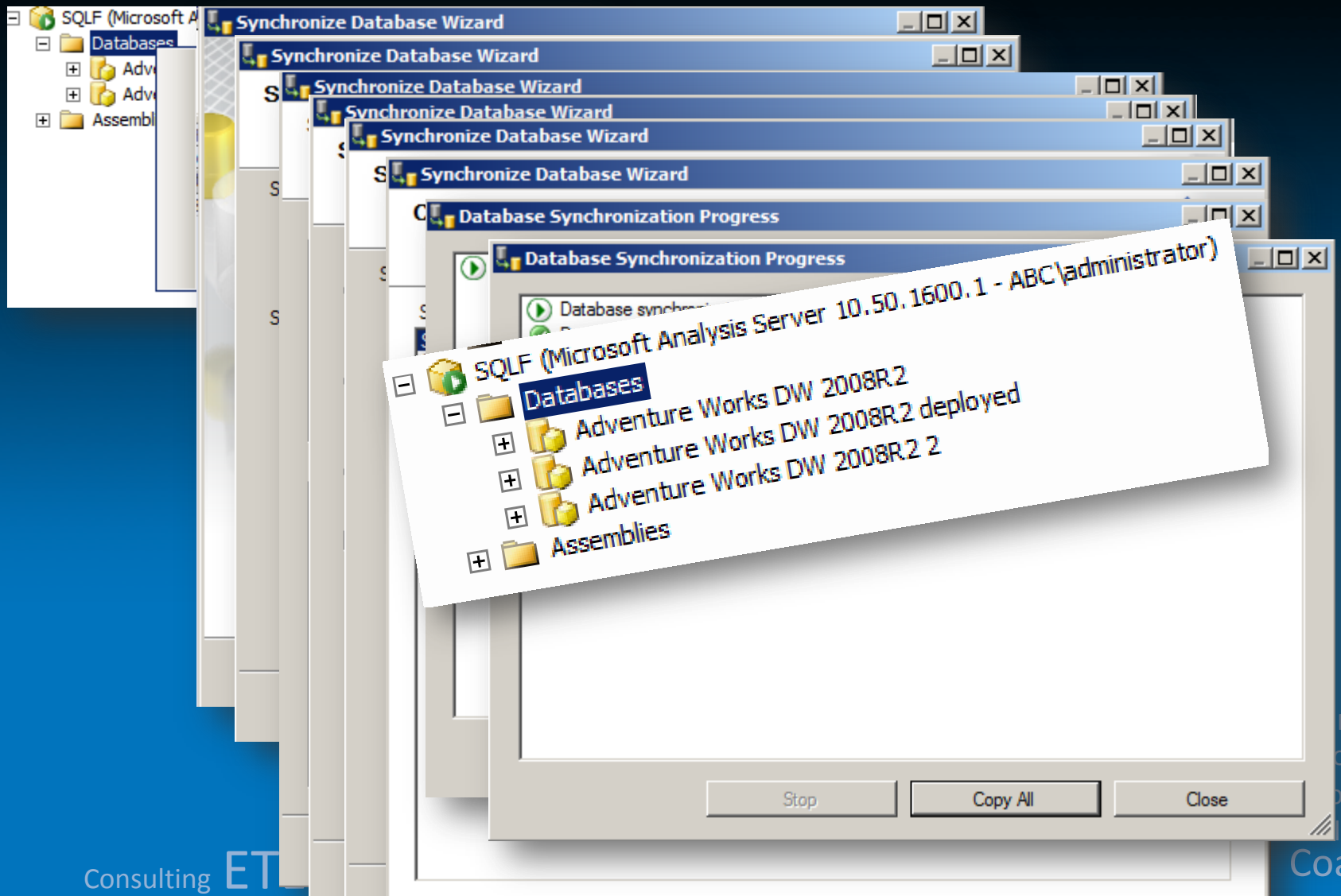
Synchronize Wizard



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XML/A
Scripting…

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How use XML/A in .NET?

```
using Microsoft.AnalysisServices.AdomdClient;

AdomdConnection admdcon = new AdomdConnection(tbConnString.Text);

admdcon.Open();

AdomdCommand cmd = admdcon.CreateCommand();

cmd.CommandText = tbXMLA.Text;

int result = cmd.ExecuteNonQuery();

admdcon.Close();
```

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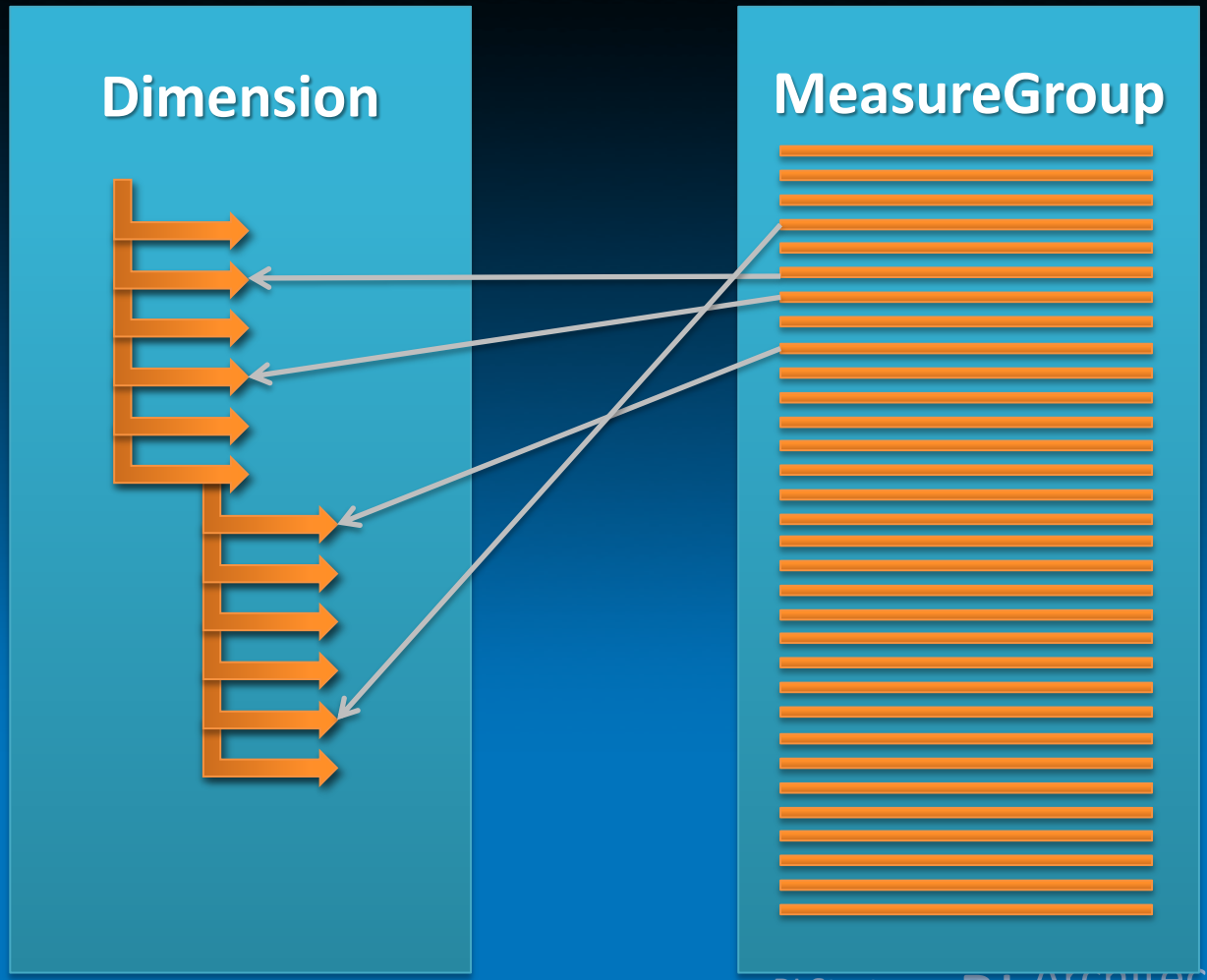
Linked Dimensions



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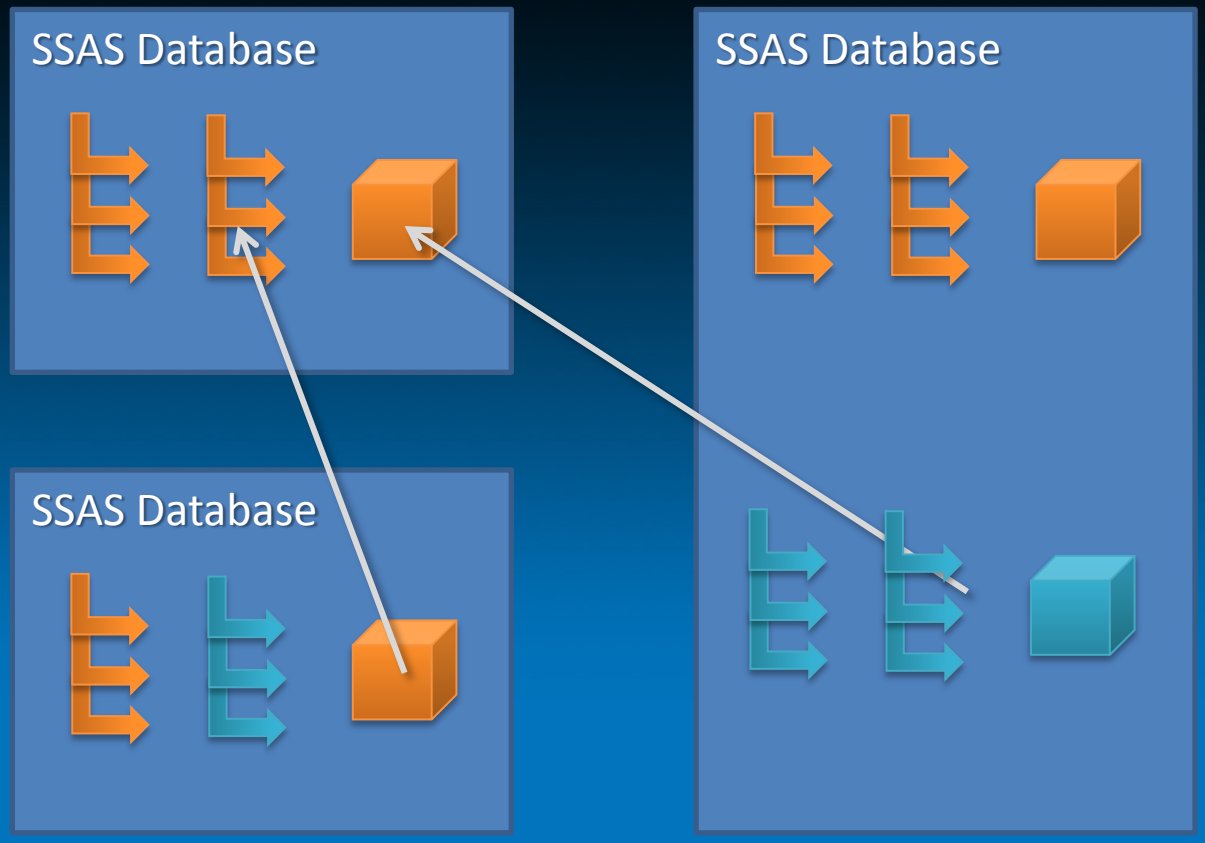
Linked Dimensions & Measure Groups



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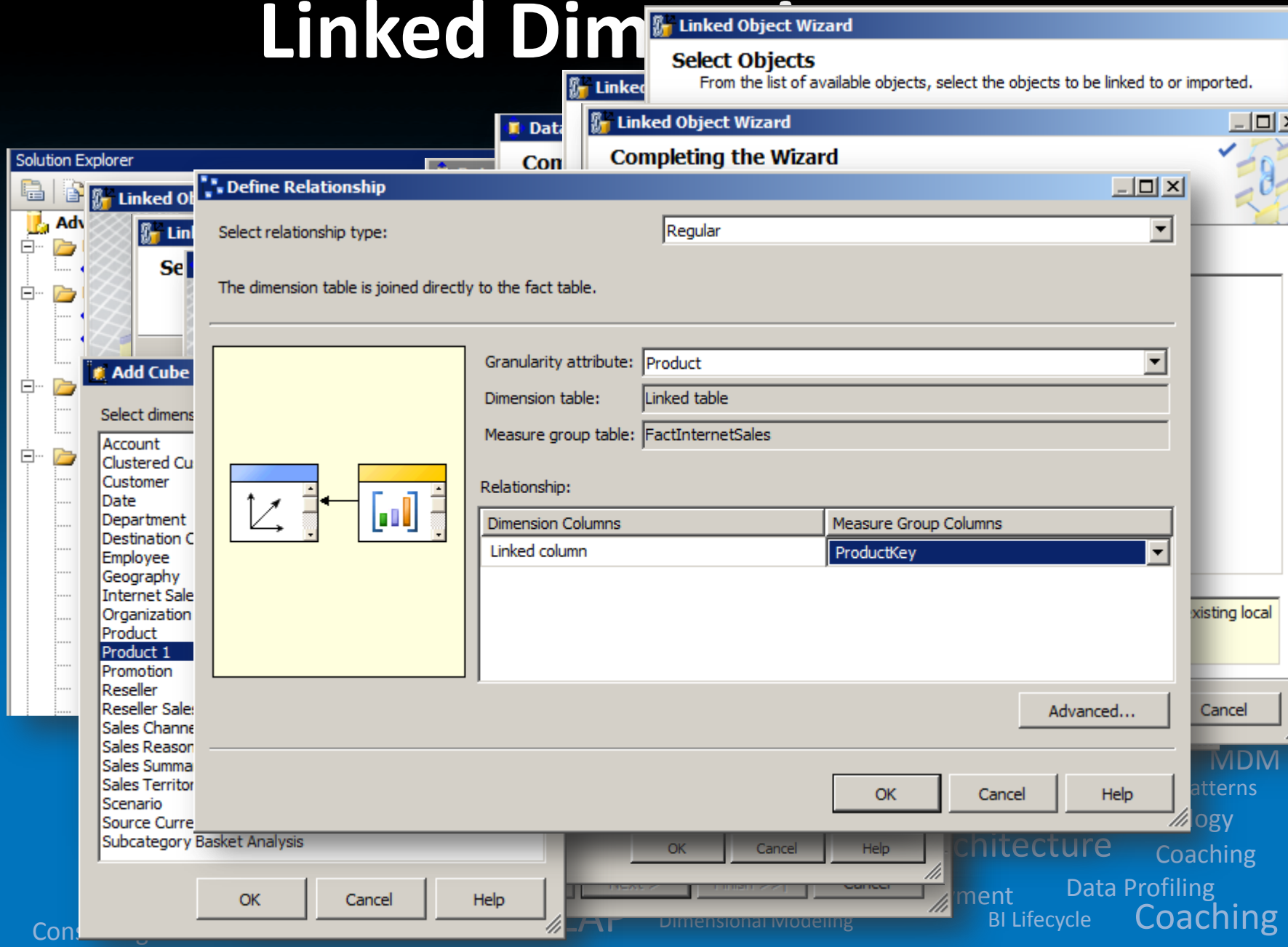
Linked Dim


Linked Object Wizard
Select Objects
From the list of available objects, select the objects to be linked to or imported.
Linked Object Wizard
Completing the Wizard
Solution Explorer
Define Relationship
Select relationship type:
Regular
The dimension table is joined directly to the fact table.
Granularity attribute:
Product
Dimension table:
Linked table
Measure group table:
FactInternetSales
Relationship:
Dimension Columns
Measure Group Columns
Linked column
ProductKey
Advanced...
OK
Cancel
Help
Add Cube
Select dimens
Account
Clustered Cu
Customer
Date
Department
Destination C
Employee
Geography
Internet Sale
Organization
Product
Product 1
Promotion
Reseller
Reseller Sales
Sales Channe
Sales Reason
Sales Summa
Sales Territor
Scenario
Source Curre
Subcategory Basket Analysis
OK
Cancel
Help
existing local
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Linked Dimension

- Prerequiste:

Feature \ LinkFromOtherInstanceEnabled	false	fa
Feature \ LinkInsideInstanceEnabled	true	tru
Feature \ LinkToOtherInstanceEnabled	false	fa

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Demo
Linked Dimensions

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Summary
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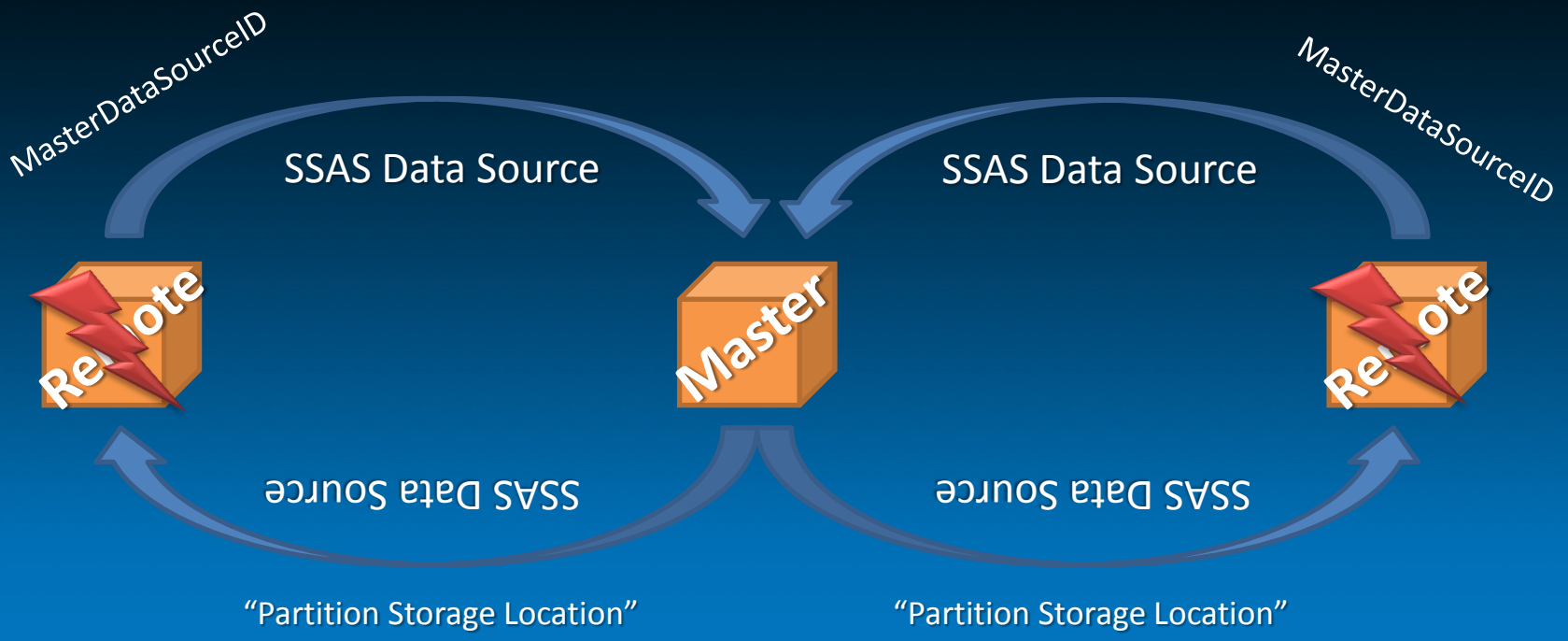
Remote Partitions



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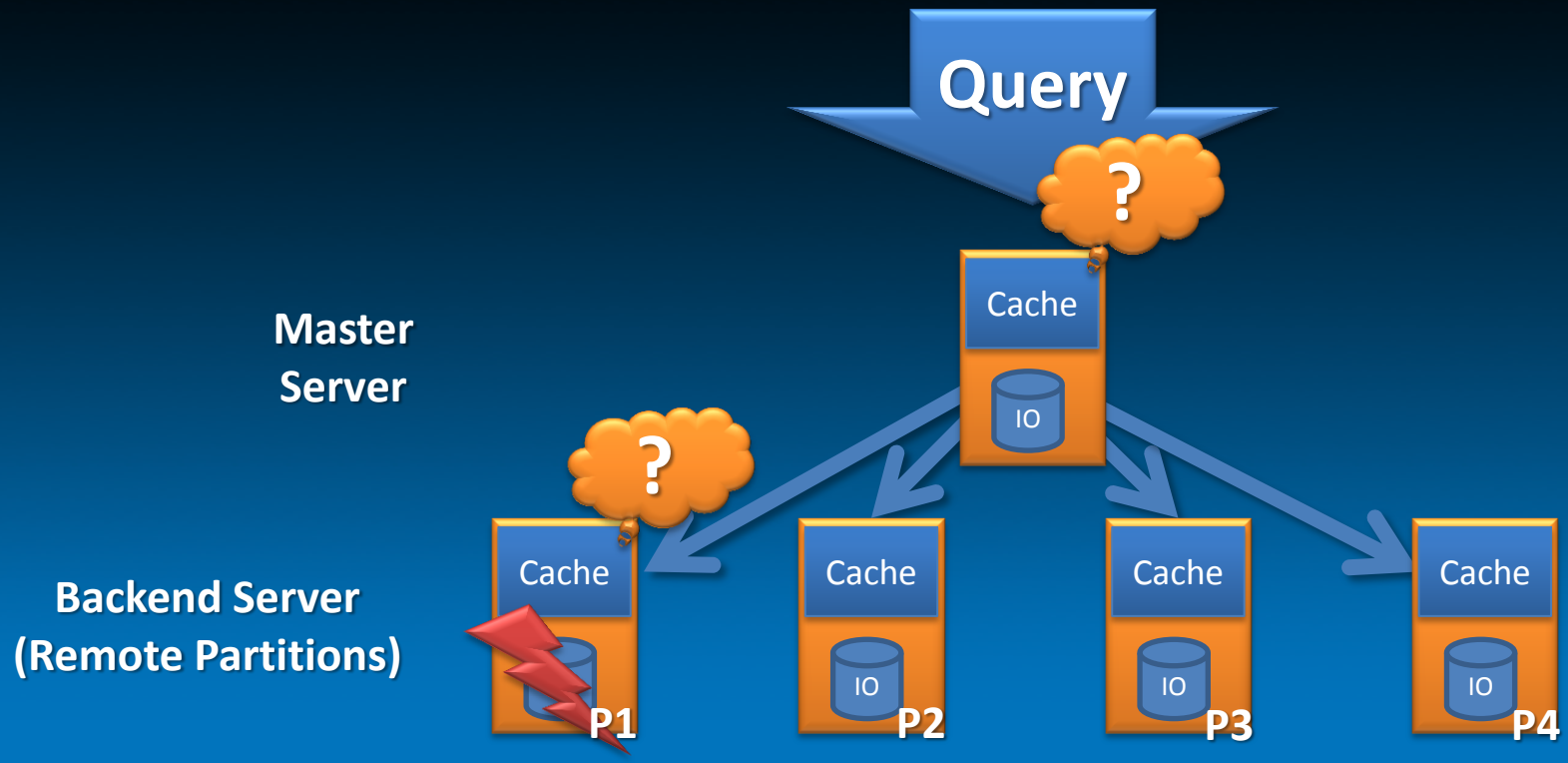

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Checklist for Remote Partitions

- Create a common SSAS DB on *Master*
- Create an empty SSAS DB on *Remote*
  - Create a Data Source pointing to *Master*
  - Alter the MasterDataSourceId Property
- Create a Data Source pointing to *Remote* on *Master*
- Alter the “Partition Storage Location” on *Master*
- That’s all! ☺

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Demo
Remote Partitions

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Common Errors

- Wrong Data Source Typ
- Using Localhost („.“)
- No Data Source pointing to Remote
- No Data Source pointing to Master
- Missing „MasterDataSourceId“
- LinkFromOther…/LinkToOther… Setttings
- Security Settings

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Analysis Services…

```
using Microsoft.AnalysisServices;
…
using (Server svr = new Server())
{
        svr.Connect(„myServer");
        Database db = svr.Databases.Add(pDatabaseName);
        db.DataSourceImpersonationInfo = new
        ImpersonationInfo(ImpersonationMode.ImpersonateServiceAccount);
        db.Update();
        DataSource ds = db.DataSources.Add(pDSName);
        ds.ConnectionString = pDSConnString;
        ds.Update();

        db.MasterDataSourceId = pDSName; // Here…
```

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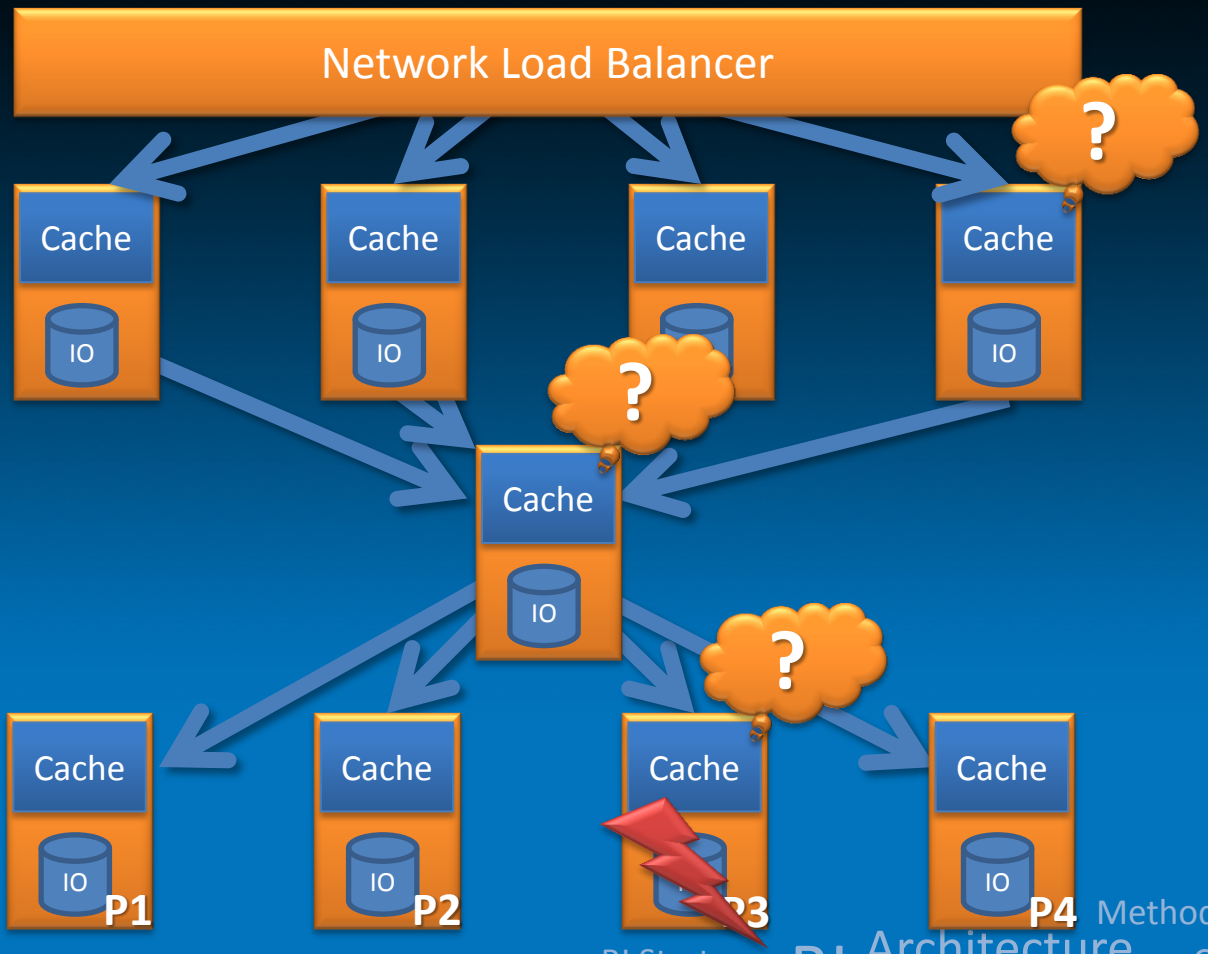
Analysis Services Farm Setup



Frontend Server (Linked Dimensions & Measure Groups)

Master Server

Backend Server (Remote Partitions)

MDM
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Methodology
Coaching
Architecture
BI
BI Strategy
Data Quality
Analysis Services
Reporting Services
Skill Improvment
Data Profiling
Consulting
ETL
Data Warehouse
OLAP
Dimensional Modeling
BI Lifecycle
Coaching

Summary
Scale-out ✓

Logical

- Linked Dimensions ✓
- Linked Measuregroups ✓
- Shared Scalable Databases ✓

Physical

- Backup/Restore ✓
- Copy (Detach/Attach) ✓
- Deployment ✓
- Synchronization ✓
- Shared Scalable Databases ✓
- Remote Partitions ✓

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So long…

Any Questions?

The End

Thank you!

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