# Module 1:
# Introducing SQL Server Data Tools

# What Is SSDT?

- **New database tooling in Visual Studio**
  - Major step forward from previously available tooling
    - SQL Server Management Studio (SSMS)
    - Visual Studio Database Professional Edition (DbPro)
      - Aka “Data Dude”
- **Not an SSMS Replacement**
  - SSMS remains the primary management tool
- **Replaces DbPro**
  - …but not entirely

# Database Development Pains

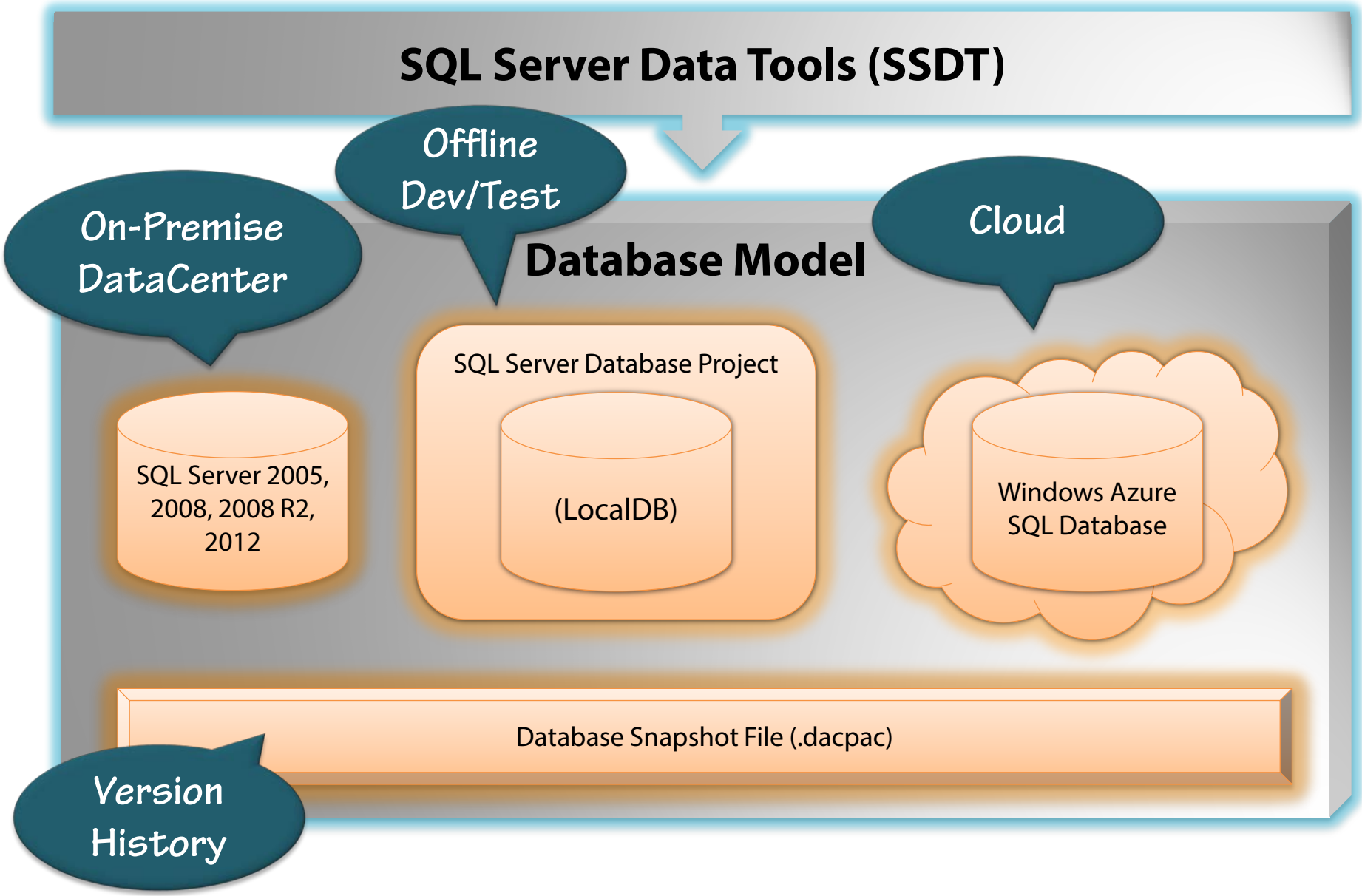
- **Architecturally challenging**
  - Database, schema, relational design
  - T-SQL intricacies
  - Performance tuning
  - …and more
- **Development process**
  - Lots of dependencies to manage
  - Late-bound error detection
  - Production is a moving target
  - Versioning and source control
  - Target different editions and the cloud

# SSDT To The Rescue

# Declarative vs. Scripted

- **How do you deploy a table, view, stored procedure, etc?**
  - If it's new, then it's a CREATE statement
  - If it exists, then it's an ALTER statement
- **Working with a declaration of what you believe (or want) the database to be**
  - Focus on design
  - Let the tool worry about writing scripts "just right"
- **Model-based Design**
  - In-memory representation of database structure (not a database!)
  - Populate from local/cloud database or source control
- **Same tools whether connected or offline**
  - Works the same against a connected database or any source-controlled version of a database

# Declarative Model-Based Development



# Connected Development

- **SQL Server Object Explorer**
  - New panel inside Visual Studio
  - Implements most developer-oriented features from SSMS
- **Query Window**
  - Provides a query execution window similar to SSMS
- **Power Buffer**
  - Edit multiple objects
  - Real-time validation on memory-resident edits
  - Automatically generate and execute change script

# Offline Database Projects

- **The database as a set of artifacts**
  - Offline development with Visual Studio project system
  - Put in source control alongside the application
- **Test locally "offline" with (localdb)**
  - SSDT includes a lightweight, single user instance of SQL Server for offline development and testing
- **Create snapshots**
  - Save the database structure in a .dacpac file
- **Flexible deployment**
  - One database definition with a targeting switch
  - Target different editions of SQL Server or Windows Azure SQL Database

# Schema Differencing

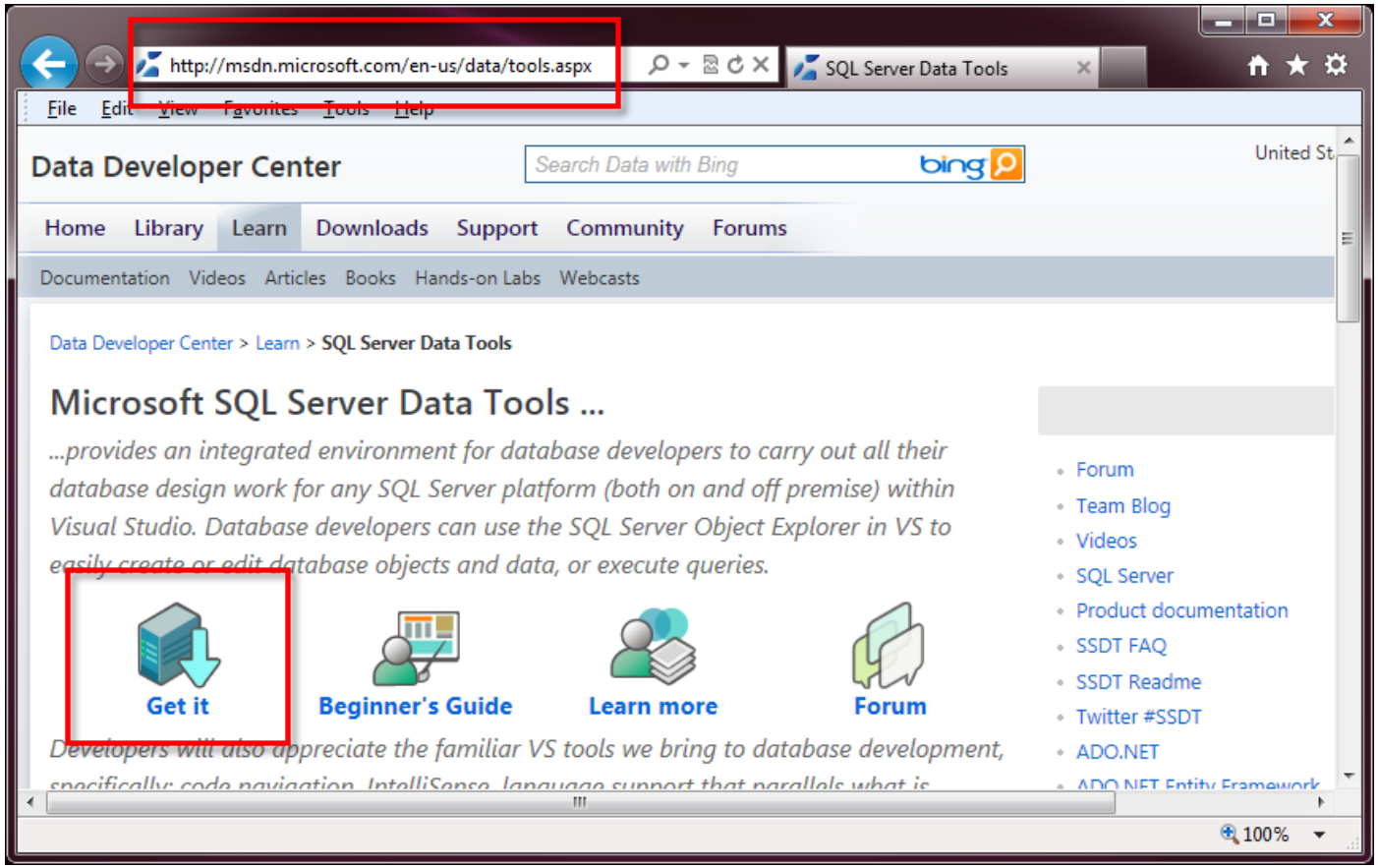
- **Compare any two database models**
  - Real databases
  - Database projects
  - Database snapshots
- **Use for**
  - Incremental import and deployment
  - Publish to Windows Azure SQL Database
  - Drift detection and reconciliation

# SSDT Limitations

- **Only focused on schema, not data**
  - No data generation
  - No data compare
  - No database unit testing
  - Not ready to replace Visual Studio Database Professional (DbPro)
- **Other notable omissions**
  - No graphical query designer
  - No database diagrams
  - No spatial results viewer

# Installing SSDT

- Download from
  - http://msdn.microsoft.com/data/tools.aspx



# Demo

- Connected Development with the SQL Server Object Explorer

# Demo

- Using the Query Window

# Gathering New Requirements

# Demo

- Introducing the SSDT Table Designer and Power Buffer