



Untangling Data Mesh, Fabric, and Lakehouse

Information systems architecture beyond the Data Warehouse and Lake

- Origins, drivers, meaning, and detailed functionality of data lakehouse, fabric, and mesh
- Benefits—business and technical—and lessons learned for each approach
- An in-depth comparison of data fabric and mesh with data warehouse, lake, hub, and lakehouse
- Possibilities and challenges of new database and data management technologies in Cloud, on-premises, and hybrid environments
- The central role of context-setting information, knowledge systems, and metadata
- Using data virtualization and preparation as tools for integration of all types of content and data in Cloud, on-premises, and hybrid environments
- Practical planning and implementation steps from data warehouse / lake to data lakehouse, fabric, or mesh



**Two day seminar by
Barry Devlin**

AdeptEvents

LANGUAGE
English

VENUE
Utrecht / Hilversum / Virtual

TIME
9:30 – 17:00 hours

REGISTRATION
www.adeptevents.nl



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Information systems architecture beyond the Data Warehouse and Lake

The data warehouse is now middle-aged. BI has turned twenty and the data lake ten. So, is it time for something new? Something better? In fact, three new frameworks have recently emerged: data fabric, data mesh, and data lakehouse. But what are they? Are they truly novel or simply marketing hype? In essence, all three are competing technological responses to the growing needs of digital transformation. If you are facing the urgent challenges of delivering high-value, consistent, and near real-time information across Cloud and on-premises environments, understanding these approaches and their differences is critical. Learn if you should move beyond your existing data warehouse or lake and, if so, how. In this course, Barry Devlin explains and positions data fabric, mesh, and lakehouse, as well as other concepts, old and new, using a logical digital information systems architecture framework. Exploring existing and emerging technologies as well as organisational issues, methodologies, and implementation approaches, Barry will help you decide if one of these new approaches is right for your business needs, existing technical environment, and current skills.

The seminar

Three new data delivery and information preparation approaches have recently emerged to challenge current *data warehouse* and *data lake* thinking. Each has its pros and cons, strengths and weaknesses. *Data fabric* proposes active metadata and knowledge graphs to power a logical data warehouse approach. *Data mesh* suggests that a domain-oriented, self-service approach based on microservices thinking should be adopted, eliminating data copies almost entirely. *Data lakehouse*, as the name implies, attempts to combine the best of data warehouse and data lake, as well as promising transactional consistency within its scope.

All these new and old terms, with partially overlapping scopes, preferred technology bases, and different promoters, are types of *digital information systems*. Their aim is to prepare, deliver, and manage data / information to all decision-making and action-taking business processes.

Today's business, with its conflicting needs for data timeliness vs. consistency, immediate vs. correct decisions, and information-informed competition, places extensive new demands on digital information systems. These demands have led to the emergence of the lakehouse, fabric, and mesh approaches honed for the complex distributed and network-centric environments that are already common. However, the prevalence of legacy systems, historical data management issues, as well as existing and evolving complications in information meaning and usage mean that traditional approaches and knowledge cannot be readily abandoned. The key questions, therefore, are if and how data lakehouse, fabric, and mesh address these new needs, how differently each does that, where they improve on existing approaches or create new problems, and how they can coexist with or replace established data warehouses and lakes.

To answer these questions, Barry Devlin compares and contrasts all these approaches, old and new, using as a foundation the Digital Information Systems Architecture (DISA) first defined in "Business unintelligence." Existing and emerging technologies for data storage, preparation, and virtualization; data catalogs and knowledge graphs; and other tools, both on-premises and Cloud, are described and analysed. Also explored are a wide variety of organisational issues, methodologies, and implementation approaches that are often as important in assessing solutions as the underlying technologies.



What you will learn

- Origins, drivers, meaning, and detailed functionality of data lakehouse, fabric, and mesh
- Benefits—business and technical—and lessons learned for each approach
- An introduction to the technical rationale, structure and components of the conceptual and logical Digital Information Systems Architecture (DISA) and its business and technical uses
- An in-depth comparison of data fabric and mesh with data warehouse, lake, hub, and lakehouse using DISA as a basis
- Possibilities and challenges of new database and data management technologies in Cloud, on-premises, and hybrid environments
- The central role of context-setting information, knowledge systems, and metadata
- Adaptive Processes as the basis for data preparation, information creation, and insight discovery

- Using data virtualization and preparation as tools for integration of all types of content and data in Cloud, on-premises, and hybrid environments
- Practical planning and implementation steps from data warehouse / lake to data lakehouse, fabric, or mesh.

DISA is the new name for the conceptual and logical architectures introduced in "Business unIntelligence"

Who should attend?

- Enterprise, systems, solutions and data warehouse architects
- Systems, strategy and business intelligence managers
- Data warehouse, data lake and IT systems designers and developers
- Data and database administrators
- Tech-savvy business analysts.



Course description

1. The Path to the Present

- A brief history of decision-making support
- Information-use modes: active, descriptive, diagnostic, predictive, prescriptive
- Data warehouse (hub & spoke and star schema) and marts: business, technology drivers, and challenges
- Operational BI: business, technology drivers, and challenges
- The emergence and impact of big data, the Internet of Things and artificial intelligence
- Data lake: business, technology drivers, and challenges
- Logical data warehouse: business, technology drivers, and challenges

2. Architectural View I: Information as Foundation

- Modern, future-proof hypotheses for a new architecture
- Overview of conceptual and logical architecture structures
- Thinking Spaces: Information, Process, and People
- Key information considerations – timeliness/consistency, structure/context, and reliance/usage
- From silos and layers to pillars – supporting multiple storage and processing technologies
- Information types: process-mediated data, human-sourced information, machine-generated data, and context-setting information

3. Emerging Concepts: High Level View

- Data lakehouse: origins, meaning, promoters, and detractors
- Data fabric: origins, meaning, promoters, and detractors
- Data mesh: origins, meaning, promoters, and detractors
- Models for decision making and action taking: the adaptive decision loop and others
- How your decision-making model influences deciding between these concepts

4. Context is Everything: Modernising Metadata

- From DIKW to the manifest meaning model
- Information, knowledge, meaning, decision, action
- Metadata as context-setting information – sources and stores, tools and techniques, including data glossary, data dictionary, and data catalog
- Modelling, ontologies, and knowledge graphs

5. Deep Dive I: Data Lakehouse

- Conceptual and architectural views: from data warehouse and lake
- Vendor-driven architecture
- Products, tools, and techniques
- Cloud vs. Extended Hadoop Ecosystem
- What do we mean by “operational systems” today?
- Technology considerations, including NoSQL data stores, Hadoop-based databases, XML, JSON-based, graph and other data stores
- Pros and cons

6. Deep Dive II: Data Fabric

- Conceptual and architectural views: logical data warehouse
- Architecture from major analyst firms
- Products, tools, and techniques
- Active metadata, semantic knowledge graphs, and data virtualization
- Technology considerations, including relational database evolution: structures, software and hardware, Cloud-based relational DBs
- Pros and cons

7. Architectural View II: Process as Intermediary

- Merging of business and IT processes
- Defining adaptive, closed-loop processes across business and IT
- The new role of users in “application development” – opportunities and dangers
- Evolution of SOA to orchestration

8. Evolution of Information Preparation

- Data Preparation, ETL, Replication, Data Warehouse Automation, Wrangling, and Data Virtualisation
- Data pipelines and data ops
- Batch, real-time and Lambda architectures
- Streaming, messaging, immutable logs and Kappa architecture

9. Deep Dive III: Data Mesh

- Conceptual and architectural views: beyond the operational/informational divide

Course description

- Decision-making and action-taking in a closed-loop, real-time environment
- Eliminating data copies and “single version of truth”
- Focus on governance and development responsibilities
- Products, tools, and techniques
- Technology considerations, including Service Oriented Architecture and Microservices
- Pros and cons

10. Migration and Implementation

- Evolution – not revolution – a methodology for successful migration
- The Corporate Information Atlas (CIA) and Staged Implementation Roadmap (SIR)
- Organisational considerations; changes in IT culture and responsibilities
- Hybrid cloud / on-premises implementation considerations
- Selected possible first migration steps
- Lessons from technology implementations during the COVID-19 pandemic

11. Conclusions and Wrap-up

- Comparing data lakehouse, fabric, and mesh with one another
- Comparing all three with current best practice
- Outlook for further developments
- Conclusions

12. Optional Topic: Ethical and Economic Considerations

- The emergence and importance of artificial intelligence (AI)
- Augmenting and/or Automating decision making and action taking
- Technical, legal, and ethical issues with data collection, anonymisation and surveillance
- Bias, privacy erosion, facial recognition, affective computing and other dangers
- Surveillance capitalism and other economic uses of big data and AI



BARRY DEVLIN

Dr. Barry Devlin is among the foremost authorities on business insight and one of the founders of data warehousing, having published the first architectural paper in 1988. With over 40 years of IT experience, including 20 years with IBM as a Distinguished Engineer, he is a widely respected industry analyst, consultant, speaker and author of the seminal book, “Data Warehouse—from Architecture to Implementation” and numerous White Papers. His 2013 book, “Business unIntelligence—Insight and Innovation beyond Analytics and Big Data” is available in both hardcopy and e-book formats.

As founder and principal of 9sight Consulting, Barry provides strategic consulting and thought leadership to buyers and vendors of BI solutions. He is continuously developing new architectural models for all aspects of decision-making and action-taking support. Following a decade in South Africa, he is now based in the UK, and Barry’s knowledge and expertise are in demand across Europe and beyond.

Information



DATE AND TIME

The workshop will take place once or twice a year with the exact date and time available on our website. The programme starts at 9:30 am and ends at 5:00 pm on both days. Registration commences at 8.30 am and we recommend that you arrive early.

If we need to run virtual half day sessions, the programme starts at 9:00 am and ends at 1:00 pm. Please log in well in advance to check your video and audio settings.

VENUE

Adept Events works with several venues in and near Amersfoort and Utrecht. We strive to provide you with the location details as soon as possible. The exact venue will be on our website and in the confirmation e-mail that you will receive one week prior to the event. Always check our website prior to your departure to ensure you have the exact location and directions.

The virtual seminars and workshops will be offered through a live video stream from our video studio. The virtual classroom is equipped with multiple professional cameras and microphones and we have a two person crew available so that we can offer a similar experience to that of the traditional classroom and, more important, still offer adequate interaction with the speaker.

HOW TO REGISTER

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REGISTRATION FEE

Taking part in this two-day workshop will only cost € 1215 when registering 30 days beforehand and € 1350 per person afterwards (excl. 21% Dutch VAT). This also covers documentation, lunch, tea/ coffee.

Note: This seminar may also be offered 'Online' or as 'Face-to-face and live streaming'. In that situation, the prices for attending online differ from the prices listed here. On the Registration Fee page of our website you will always find the current rates for all available formats of this seminar.

In completing your registration form you declare that you agree with our **Terms and Conditions**.

Team discounts

Discounts are available for group bookings of two or more delegates representing the same organization made at the same time. Ten percent off for the second and third delegate and fifteen percent off for all delegates when registering four or more delegates (all delegates must be listed on the same invoice).

This cannot be used in conjunction with other discounts.

All prices are VAT excluded.

PAYMENT

Full payment is due prior to the workshop. An invoice will be sent to you containing our full bank details including BIC and IBAN. Your payment should always include the invoice number as well as the name of your company and the delegate name.

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Cancellation Policy

Cancellations must be received in writing at least three weeks before the commencement of the workshop and will be subject to a € 75,- administration fee. It is regretted that cancellations received within three weeks of the workshop date will be liable for the full workshop fee. Substitutions can be made at any time and at no extra charge.

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INFORMATION



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