PROLOGUE

Building Serverless Solutions
with Azure and .NET

Introduction to Event-Driven Architecture

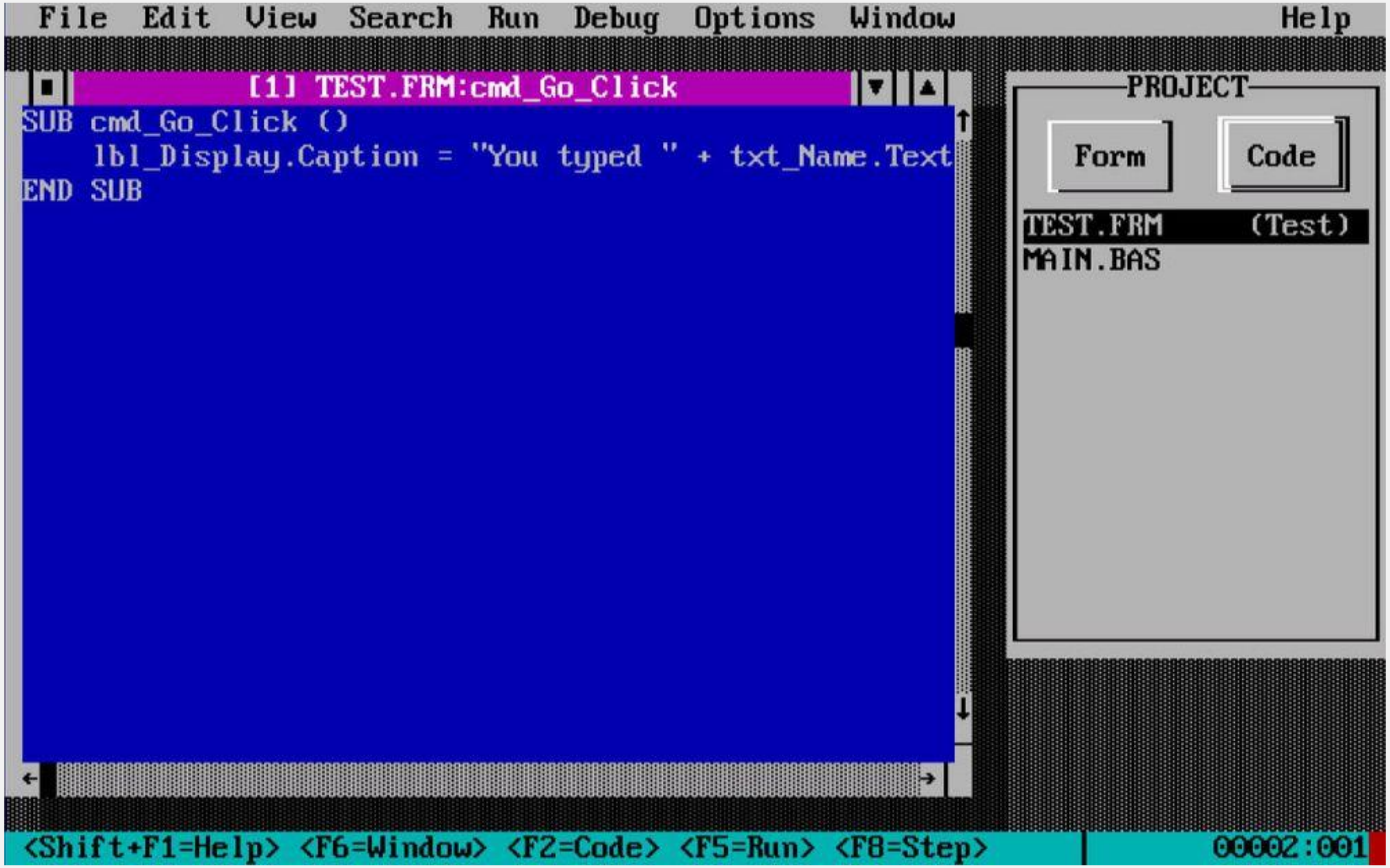
Understanding the Basics

What is Event-Driven Architecture?

> A software architecture pattern promoting the production, detection, consumption of, and reaction to **events**.

- Wikipedia -

What is Event-Driven Architecture?


File Edit View Search Run Debug Options Window Help
[1] TEST.FRM:cmd_Go_Click
PROJECT
Form
Code
TEST.FRM (Test)
MAIN.BAS
<Shift+F1=Help> <F6=Window> <F2=Code> <F5=Run> <F8=Step>
00002:001

```
SUB cmd_Go_Click ()
    lbl_Display.Caption = "You typed " + txt_Name.Text
END SUB
```

What is Event-Driven Architecture

Event-driven architecture (EDA) is a design paradigm in which a software component executes in response to receiving one or more event notifications.

EDA is more loosely coupled than client/server paradigm because the component that sends the notification doesn’t know the identity of the receiving components at the time of compiling

- Garner -

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- Garner -

Key Components

Events

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Events

Event Emitters (Agents)

Key Components

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Event Consumers (Sinks)

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Event Channels

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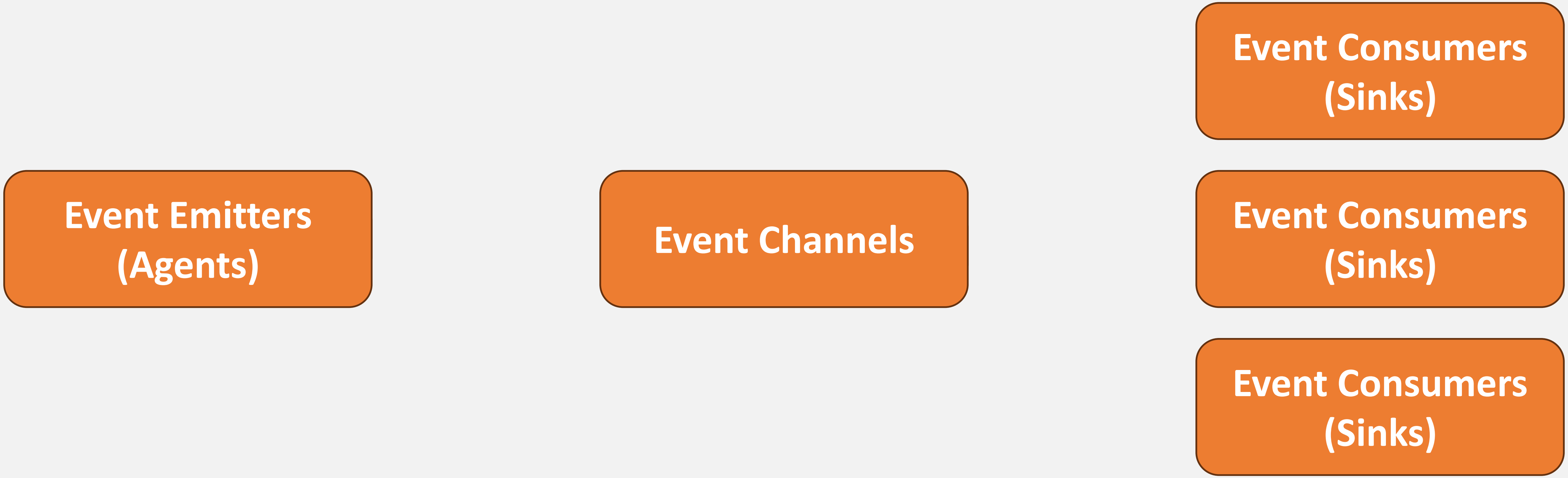

Event Emitters (Agents)

Event Channels

Event Consumers (Sinks)

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Benefits

Decoupling

Benefits

Decoupling

Scalability

Benefits

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Scalability

Real-Time Responsiveness

Benefits

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Scalability

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Resilience

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Scalability

Real-Time Responsiveness

Resilience

Flexibility

Benefits

- Decoupling
- Scalability
- Real-Time Responsiveness
- Resilience
- Flexibility
- **Auditability**

Challenges

Complexity

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Complexity

Event Ordering

Challenges

Complexity

Event Ordering

Idempotency

Challenges

Complexity

Event Ordering

Idempotency

Event Schemas

Challenges

- Complexity
- Event Ordering
- Idempotency
- Event Schemas
- Testing

Challenges

- Complexity
- Event Ordering
- Idempotency
- Event Schemas
- Testing
- **Monitoring and Debugging**

Limitations

Guaranteed Delivery

Reliability

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Guaranteed Delivery

Reliability

At-Least-Once Delivery

Limitations

Guaranteed Delivery

Reliability

At-Least-Once Delivery

Ordering and Timing

Limitations

Guaranteed Delivery

- Reliability
- At-Least-Once Delivery
- Ordering and Timing
- **Monitoring and Error Handling**

Implementation Examples

Implementation Examples

SCHWARZ
LIDL
Kaufland
SCHWARZ Produktion
pre zero

Implementation Examples

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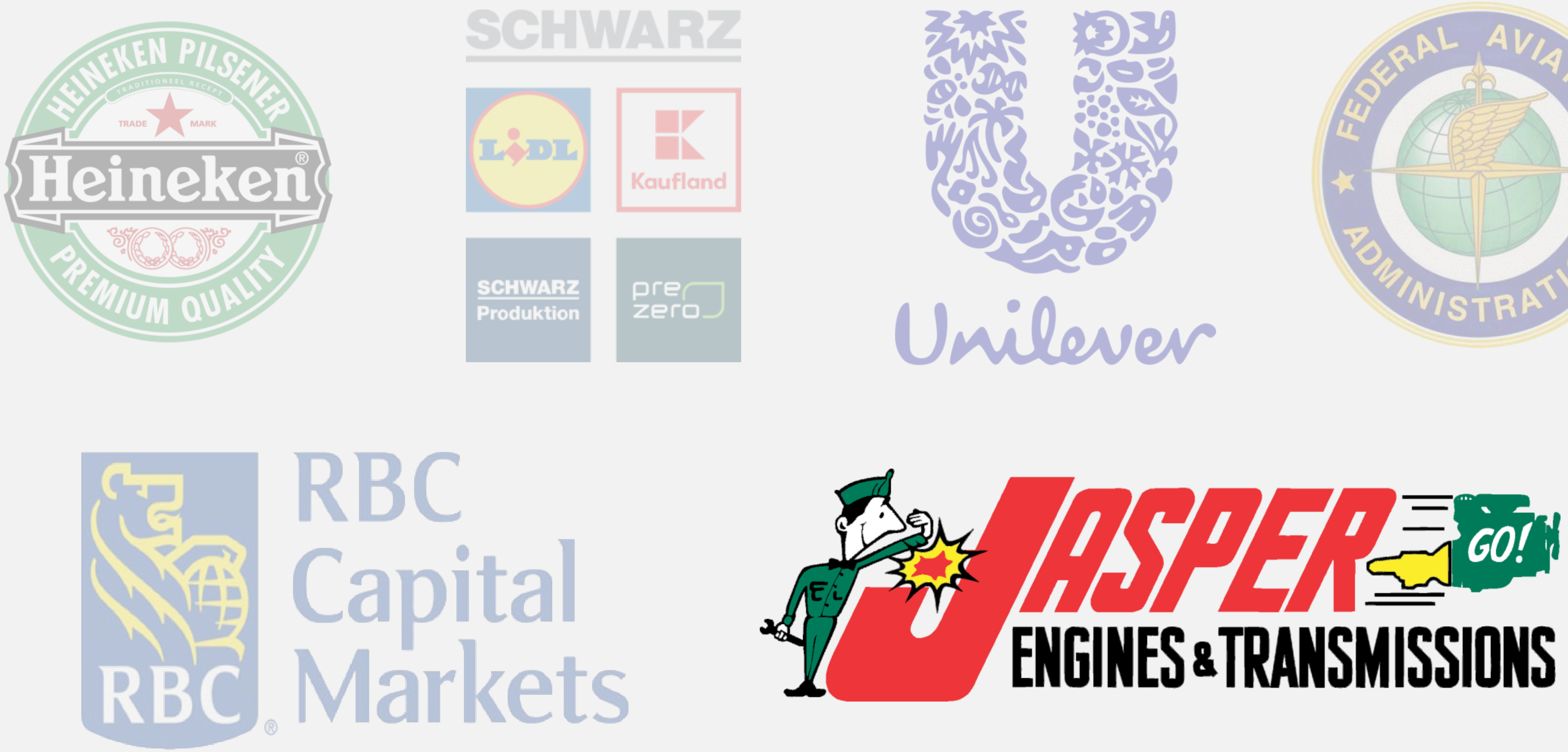
Implementation Examples

Implementation Examples



Conclusion

- Event-driven architecture offers several benefits but comes with its own challenges.
- It is particularly well-suited for real-time, asynchronous, and distributed applications.

Introduction to Serverless

Beyond Traditional Infrastructure