

Creating Calculations to Solve Business Problems: PI Advanced Computing Engine (PI ACE)

Presented by

Klaus Pohl

Technical Support Manager EMEA

OSIsoft



Presentation Outline

- Demo / video about creating a simple PI ACE Calculation
- Demo / video on how to maintain PI ACE Calculations using PI ACE Manager
- Why would you use PI ACE and who are the target user groups?
- Integration into PI AF (Asset Framework)
- What's new in PI ACE 2010 R2?
- Where can additional information be found?

PI System Analytics

Configuration	Programming
PI Performance Equations	PI Advanced Computing Engine (PI ACE)
PI Totalizers	Microsoft StreamInsight & PI for StreamInsight*
PI SQC Alarm	
PI AF formula data reference	PI AF custom data reference

Introducing the PI ACE Calculation example



Collectives and Servers

Search

Servers

- GBE2008R2

System Management Tools

Search

- Alarms
- Batch
- Data
- Interfaces
- IT Points
- Operation
- Points
- Security

Session Record



Start Page X

Toolbox

Solution Explorer Team Explorer

Microsoft Visual Studio 2010 Professional

Connect To Team Foundation Server

New Project...

Open Project...

Recent Projects

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Welcome Windows Web Cloud Office SharePoint Data



What's New in Visual Studio 2010
Learn about the new features included in this release.

- [Visual Studio 2010 Overview](#)
- [What's New in .NET Framework 4](#)
- [What's New in Visual Basic](#)
- [Customize the Visual Studio Start Page](#)



Creating Applications with Visual Studio



Extending Visual Studio



Community and Learning Resources

- Close page after project load
- Show page on startup





BlackBoxLevelCalc.vb*

BlackBoxLevelCalc

ACECalculations()

```
' Tag Name                VB Variable Name
' -----
' InFlow                  InFlow
' Level                   Level
' OutFlow                 OutFlow
'

Public Overrides Sub ACECalculations()
    Try
        Dim rChange As Double = 0
        If InFlow.IsTrigger Then rChange = InFlow.Value
        If OutFlow.IsTrigger Then rChange = rChange - OutFlow.Value
        Level.Value = Level.Value + rChange
        LogPIACEMessage(OSIsoft.PI.ACE.MessageLevel.mlUserMessage, "Calculation succesfully executed.", Me.Name)
    Catch ex As Exception
        LogPIACEMessage(OSIsoft.PI.ACE.MessageLevel.mlErrors, ex.Message, Me.Name)
    End Try
End Sub

Protected Overrides Sub InitializePIACEPoints()
    InFlow = GetPIACEPoint("InFlow")
    Level = GetPIACEPoint("Level")
    OutFlow = GetPIACEPoint("OutFlow")
End Sub
```

133 %



[-] GBE2008R2

Name	Status/Value	Since	Schedule	Output Tags
Context Summary				

0 Executables; 0 Modules; 0 Contexts (0 Running, 0 Error, 0 Unregistered, 0 OutOfService)



Why would you use PI ACE?

- Flexibility of a programming language
 - Incorporate in house and 3rd party libraries
- Assisted implementation
 - Wizard and Manager - Assist implementation
 - Reuse the same calculation for multiple assets
- PI ACE supports recalculation

Solve problems and save money for your company!

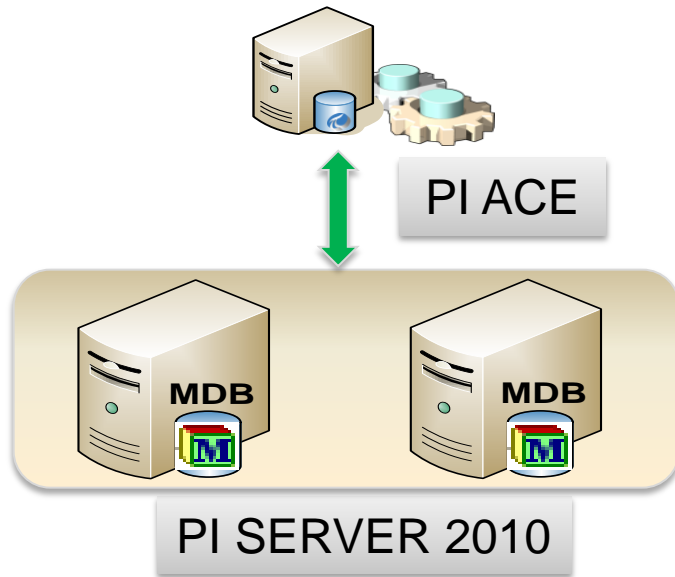


Who are the users of PI ACE?

- Development of calculations
 - Developer
 - User who can be guided by a wizard and can enter calculation logic (little programming experience)
 - You and your colleagues trained by OSIsoft
- Management of calculations
 - End User, no development knowledge required

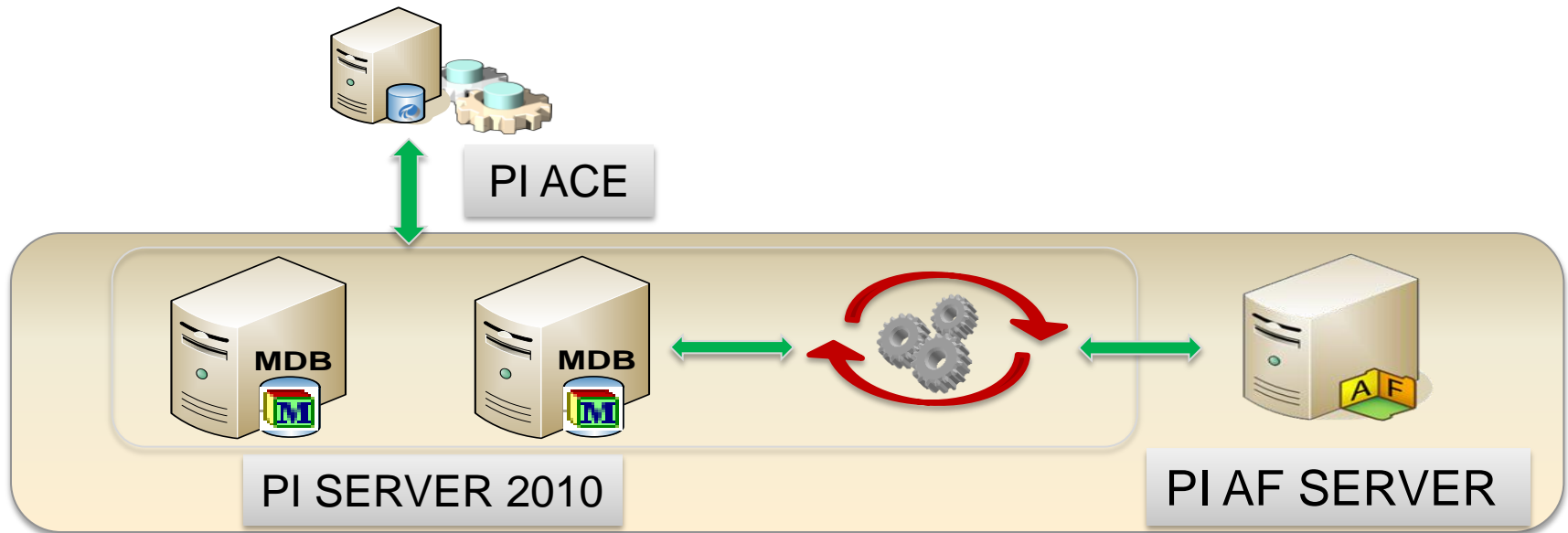
PI ACE and PI Asset Framework (PI AF)

PI ACE uses the PI Module Database (PI MDB) for configuration and calculation metadata






PI ACE and PI Asset Framework (PI AF)

PI Server 2010 enables PI MDB to PI AF link and synchronization



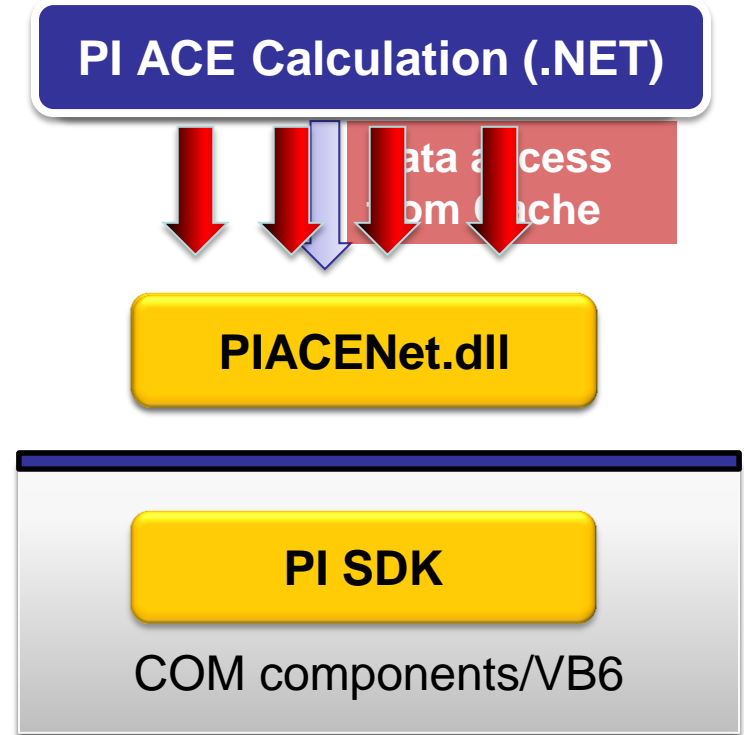
PI ACE 2010 R2 – What's new?

- Scalability – Multiple PI ACE Schedulers 
- Performance - Use less resources and run more calculations 
- Native 64-bit support
 - More calculations per PI ACE executable 
- Microsoft Visual Studio 2010 Support



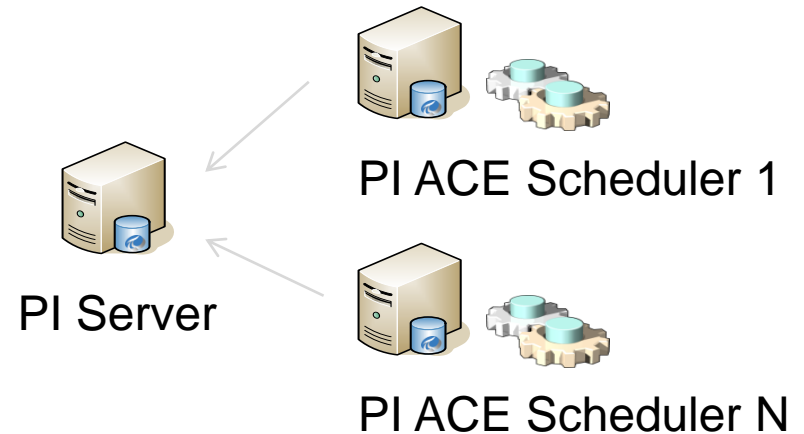
PI ACE 2010 R2 – Performance

- Improved calculation throughput
 - Up to an order of magnitude*
 - Faster start-up
 - Faster cache access
- Perform more calculations!



PI ACE 2010 R2 – Scalability

- Run more calculations
 - per PI Server



- Scale out calculations
 - Distribute the calculation load across machines



PI ACE 2010 R2

- Released 2 months ago
- PI Server 2010
 - PI ACE 2010 R2 inside!



PI ACE – More Information

- Success stories
www.osisoft.com/Templates/presentations-by-event.aspx
- Training
learning.osisoft.com/homepage.aspx
- OSIssoft vCampus
vcampus.osisoft.com/
- Online learning
www.youtube.com/osisoftlearning



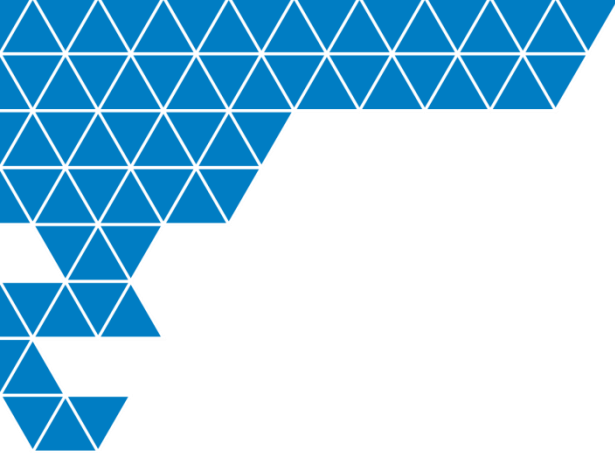
Questions

Klaus Pohl

Technical Support Manager OSIsoft EMEA

klaus@osisoft.com

+49 (0) 69 951 555 112



Thank you