

# Optimization Direct

**Introduction & Recent Optimization Case Studies**

**Informs Conference**

**Phoenix, November 2018**



# Agenda

- Alkiviadis Vazacopoulos: Introduction to Watson Studio and Recent Case Studies
- Robert Ashford: Recent benchmarking results with ODH | CPLEX
- Joshua Woodruff, Optimized Financial Systems: Leveraging python packages to improve model-building performance.
- Ed Klotz, IBM: Identification, Assessment and Correction of Ill-Conditioning and Numerical Instability in Linear and Integer Programs

# Technology Tutorial

## [Optimization Direct](#)

- Monday, November 5  
8:45-9:30am

### A DOCplex and ODH | CPLEX python primer Presented by: Robert Ashford & Joshua Woodruff

This short tutorial shows participants how to build a basic model using the DOCplex API in python. This session includes setting the python environment, reading data from a csv or spreadsheet, creating variables, objective functions, constraints, solving the model, and returning the results. Additionally this session points the participants to further reading so that they may expand their capabilities. Furthermore we will present the brand new ODH | CPLEX API for python, which improves solution times for large models.



# Exhibit Hall

- Booth #35



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# Optimization Direct

- IBM Business Partner
- More than 30 years of experience in developing and selling Optimization software
- Sold to end users – Fortune 500 companies
- Train & Help our customers to get the maximum out of the IBM software



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# What software do we sell?

- IBM ILOG CPLEX Optimization Studio
- ODH | CPLEX
- DOCPLEXCloud (Cloud offering for CPLEX)
  - Cplex is the leader in optimization technology
  - Cplex can handle large scale problems and solve them very fast
- SPSS Modeler
  - SPSS is the leader in Predictive Analytics
- Watson Studio



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# Which markets & new platforms

- Big DATA: Sparc & Hadoop & Python
- Linking optimization with Data science Projects (Predictive & Prescriptive) – Watson Studio Platform
- Travel, Hotel, Cruises
- Retail, Groceries, Clothing
- Energy, Renewables, Process
- Financial, Banking

# Why IBM? Why Cplex?

- Fast (Very fast) & Reliable
- IBM software (Cloud and on Premise offerings)
- Large scale Optimization
- Gives you the ability to model develop and solve your decision problem (Modeling tools)
  - Complete solution (Modeling & Solver)



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# Next generation Optimization with ODH

*Robert Ashford, co-founder of  
Optimization Direct,  
on the background of ODH*



# ODH | CPLEX users

- GAMS
- AIMMS
- Workforce scheduling company
- Satellite Planning and Scheduling company
- Energy Company
- Telecommunications company
- Forestry Optimization
- You can
  - Evaluate ODH | CPLEX
  - Purchase ODH | CPLEX or
  - Purchase ODH if you already have a CPLEX license



ODH|C Plex



Save money by optimizing  
with ODH|C Plex in the cloud



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# CPLEX on Private or Public Cloud

- ODH|CPLEX runs in the cloud and because it's faster than many competitive optimizers, for many problems, you can make dramatic savings on your hosting and cloud costs.
- A manufacturing client using ODH|CPLEX saved 75% of his cloud costs versus a competitive solver.
- A customer developing a workforce application uses ODH|CPLEX and gains 90% cloud savings and still gets near optimal solutions.

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# Why OPL is important for modelling

*Robert Ashford, co-founder of  
Optimization Direct and  
Alex Fleischer, IBM*



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# There is more than Mathematical Programming in IBM ILOG CPLEX Optimization Studio

*Philippe Laborie*, Principal Scientist,  
IBM CPLEX Optimization Studio at IBM  
discusses Constraint Programming  
and the CP Optimizer



ANNOUNCEMENT

# Transcriptic chooses CPLEX constraint programming for robotic cloud lab scheduling system

[Read press release](#)



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# To learn more

*I will email the PDF of this powerpoint today.*

Contact

Alkis Vazacopoulos

201 256 7323

[alkis@optimizationdirect.com](mailto:alkis@optimizationdirect.com)

[www.optimizationdirect.com](http://www.optimizationdirect.com)

