

CLOUD TECHNOLOGY FOR MORE PRODUCTIVE WORK

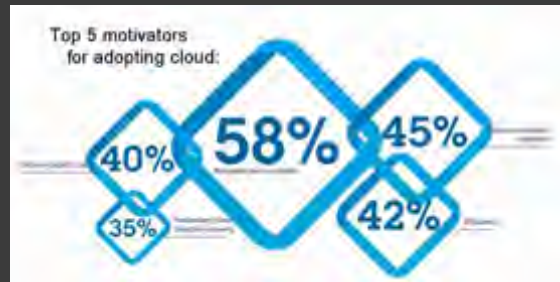
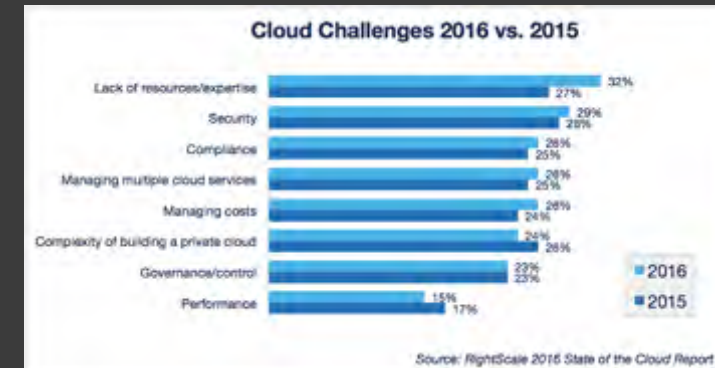
- INTRODUCTION AND CASE STUDY



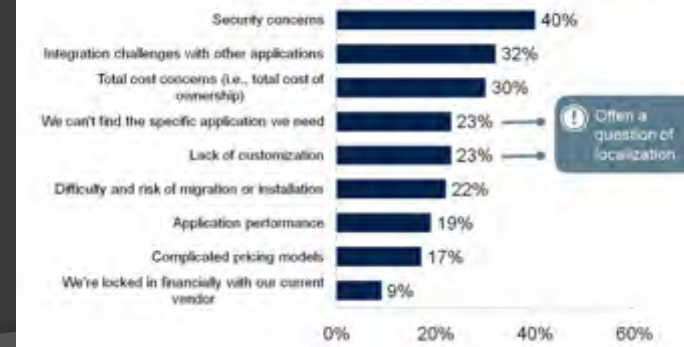
ParaTool Software

Overview

- Cloud Technology is booming!
- What is in it for **end users**?



SaaS Inhibitors: Why isn't your firm interested in SaaS?



End User Perspective

- Objective driven (Get the job done)
- Data driven (What should I this data)
- ASAP Interface
- No Programming!
- Easy to Repeat (Plasticized Action)



Software Development

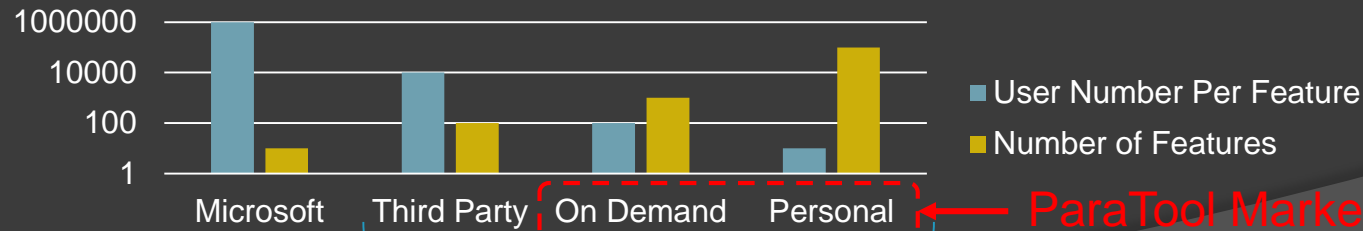


Waterfall Approach
 Large Software Package
 Software Company As Solution Provider
 Generalized Solution



Bottom up Approach
 Micro-service Modular Software
 Peer to Peer
 Customized Solution

Software Demand And Developer



ParaTool Target Market

ParaTool Software

Choice of User Interface

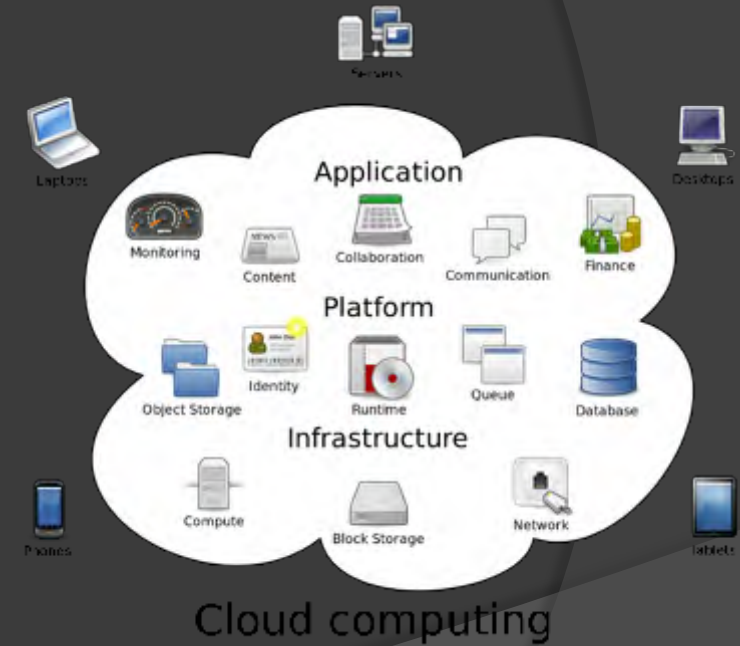


Client End GUI

```
C:\WINDOWS\system32\cmd.exe
C:\>searchpattern
no /h* paired...
Usage: searchpattern /n

C:\>searchpattern /h
0: ALLUSERSPROFILE=C:\Documents and Settings\All Users\JRD048
1: APPATH=C:\Documents and Settings\allor\AppData\Local
2: CLIENTNAME=Conzo.ie
```

Excel Google Sheets

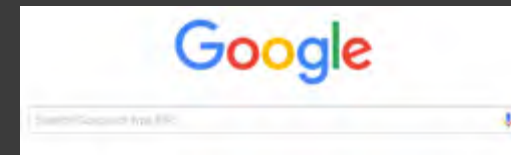


One Minute Pitch

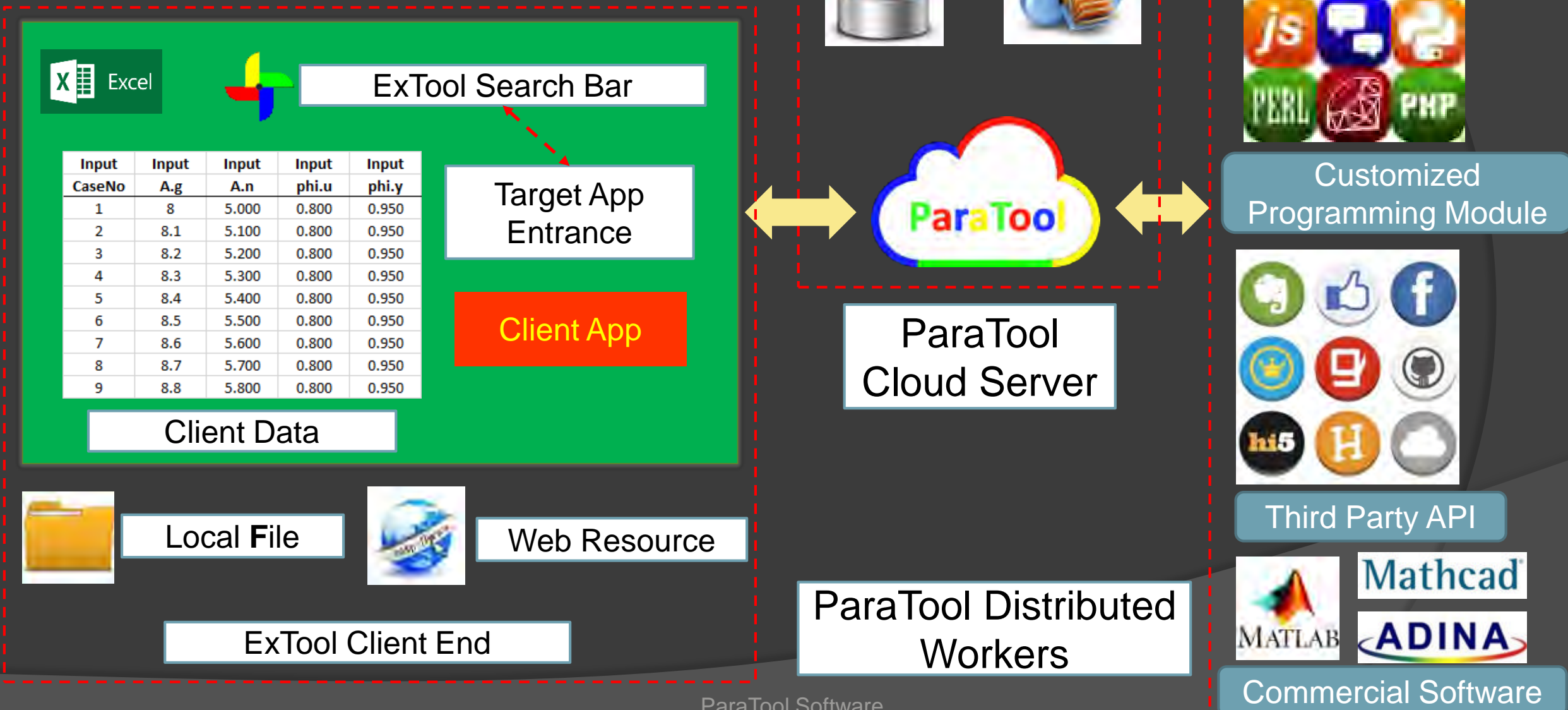
- ✓ If we **Google** for **information**, why not **software**?
- ✓ **Large software** package or **microservices**?
- ✓ **SaaS** with **browser** or **rich function client end**?
- ⦿ **Cloud Technology For More Productive Work**
 - **Last Mile of Cloud Tech** for conventional industry office worker

What do we offer

- **Spreadsheet**-Interfaced Client End (rich function, dominating office software, best user data container)
- **Cloud**-Based (accessible worldwide)
- **Search**-Access (in comparison to static GUI)
- **Crowd**-Sourced (open platform for contribution and customization)
- **SaaS Freemium** Packages of:
 - Parametric Utility **Software Library**
 - Expert/Customized **Knowledgebase Library**



How it works

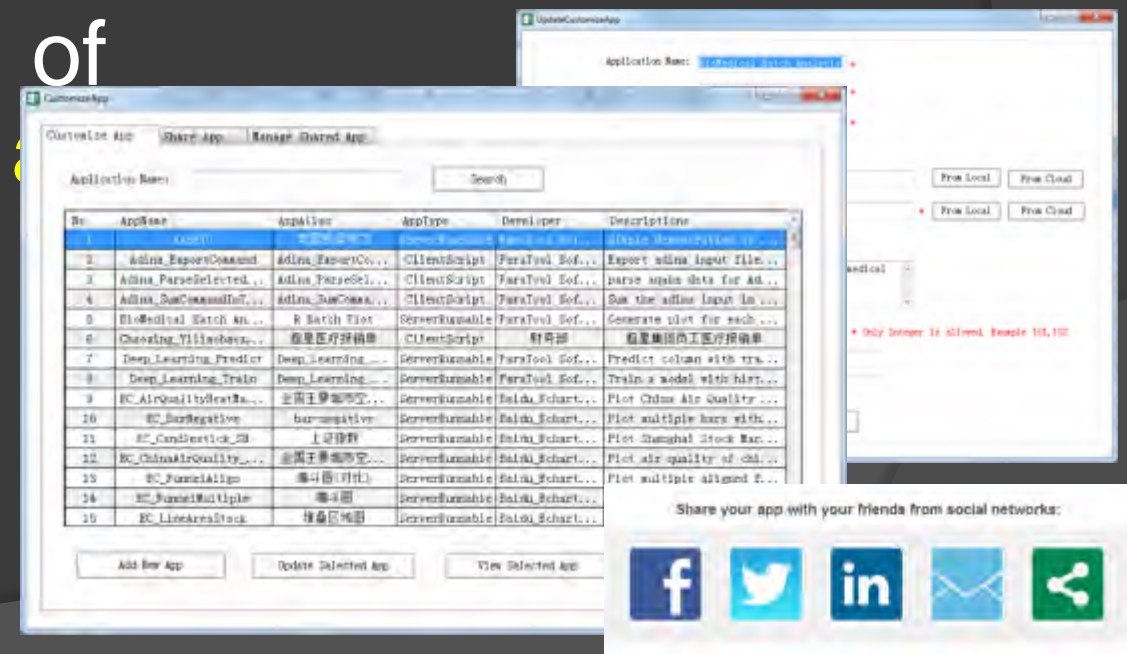


Client End Process Highlights

- User Management (用户管理)
- Search and Run App(搜索调用)
- Search Knowledgebase (知识库获取)
- Data-App Binding (数据和应用绑定)
- Customize App Layout (功能收藏管理)
- Share App Layout (功能收藏分享)
- Manage Customized App (功能自定义)
- Share Customized App (自定义功能分享)

App Development Process

- Clearly define input/output data, and Develop the app within the environment of your choice
- Deploy the app to the platform of your choice, and register your app on Paratool task server, and
- Share your app to the world

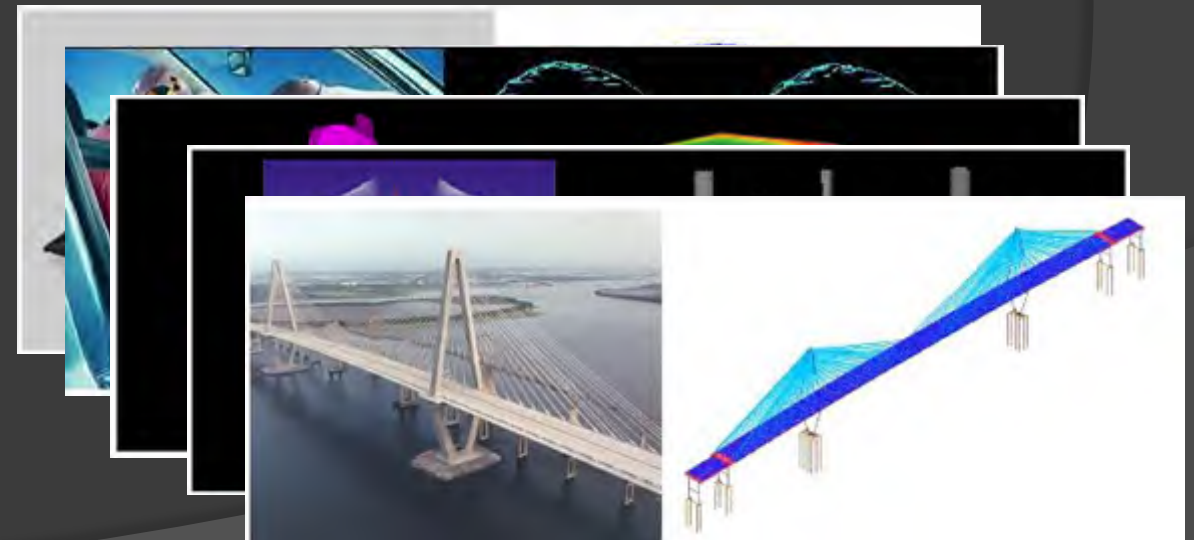


Case Study Summary

- Middleware for Commercial Software (Adina)
- Insurance Statistical Analysis and Data Presentation
- Deep Learning Application
- Office Automation
- Business Intelligence (Data Visualization)

Case Study (Middleware for Adina)

- Adina FEM Software
- Dr. Klaus-Jürgen Bathe (UC Berkeley and MIT)
- Application
 - Solid FEM
 - CFD
 - Heat Transfer
 - Electrical Engineering



Case Study (Middleware for Adina)

⦿ Advantages

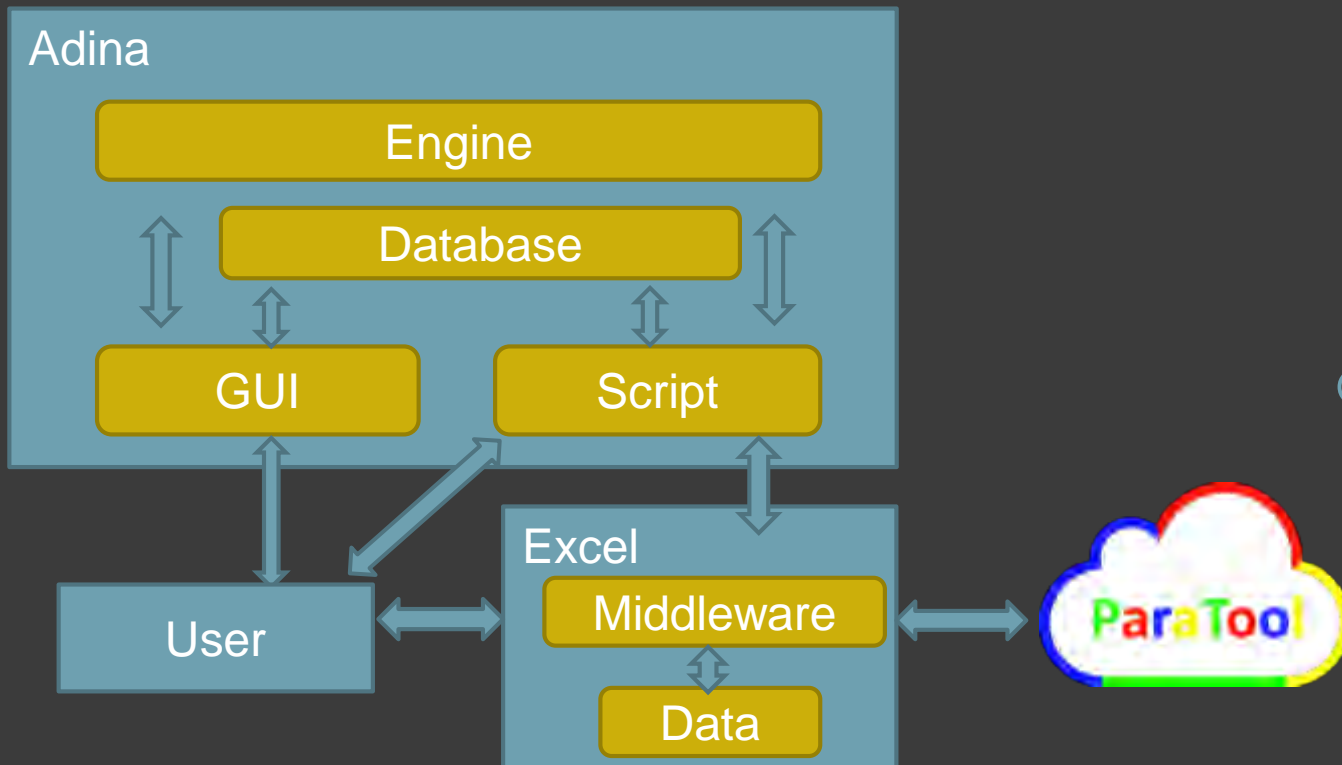
- Trusted reliable and efficient solution
- Strong mathematical model

⦿ Challenges

- Long learning curve for GUI
- Lack support for Pre/Post-process
- Lack of user knowledgebase ecosystem

Case Study (Middleware for Adina)

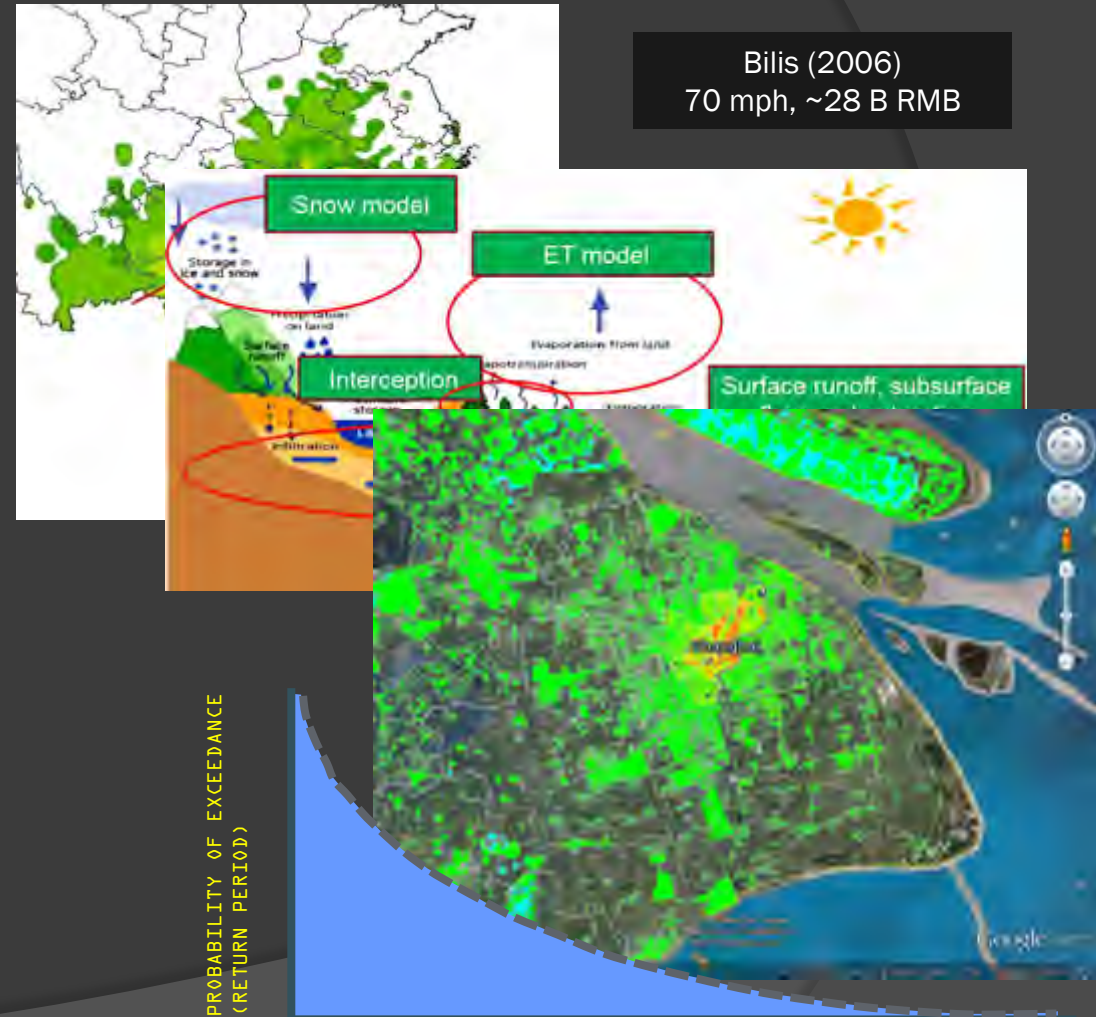
How it works



- Approach
 - Database-assisted script management
 - Modular input script
 - Spreadsheet-based script management
 - Cloud based knowledgebase system
- Results
 - Trial in consulting firm (TYLin)
 - FEM modelling process engineer hours reduce by 40%.
 - Cumulative modeling effort with easy management

Case Study (Insurance Application)

- Property Insurance industry
 - Government
 - Property Owner
 - Insurance Company
 - Finance Institution
- Key Value Proposition
 - Risk analysis
 - Vulnerability analysis
 - Finance loss projection
 - Portfolio simulation and mitigation



Case Study (Insurance Application)

⦿ Problem

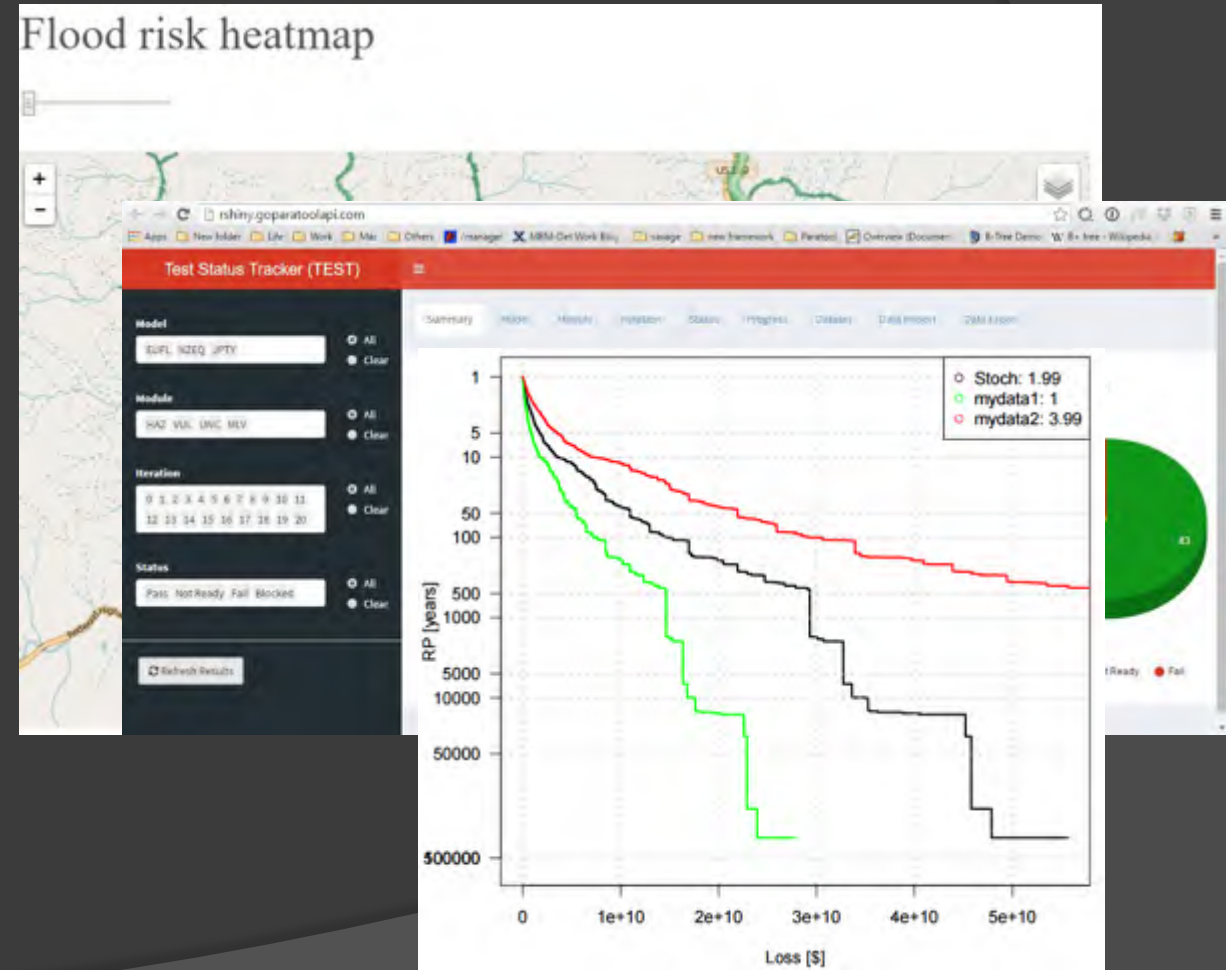
- Large Proprietary, Dynamic, Unstructured Data
- Calculation intensive, environment dependent, proprietary algorithm

⦿ Solution

- GIS presentation with cloud-base data source
- Excel-based user interface for cloud-based analysis module

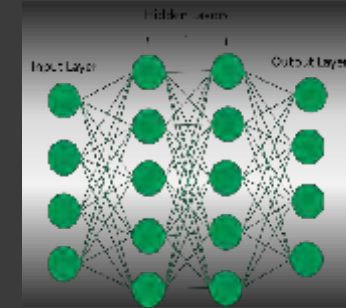
Case Study (Insurance Application)

- Application Demo
 - GIS flood depth simulation
 - Full service finance loss simulation
 - Finance loss plot

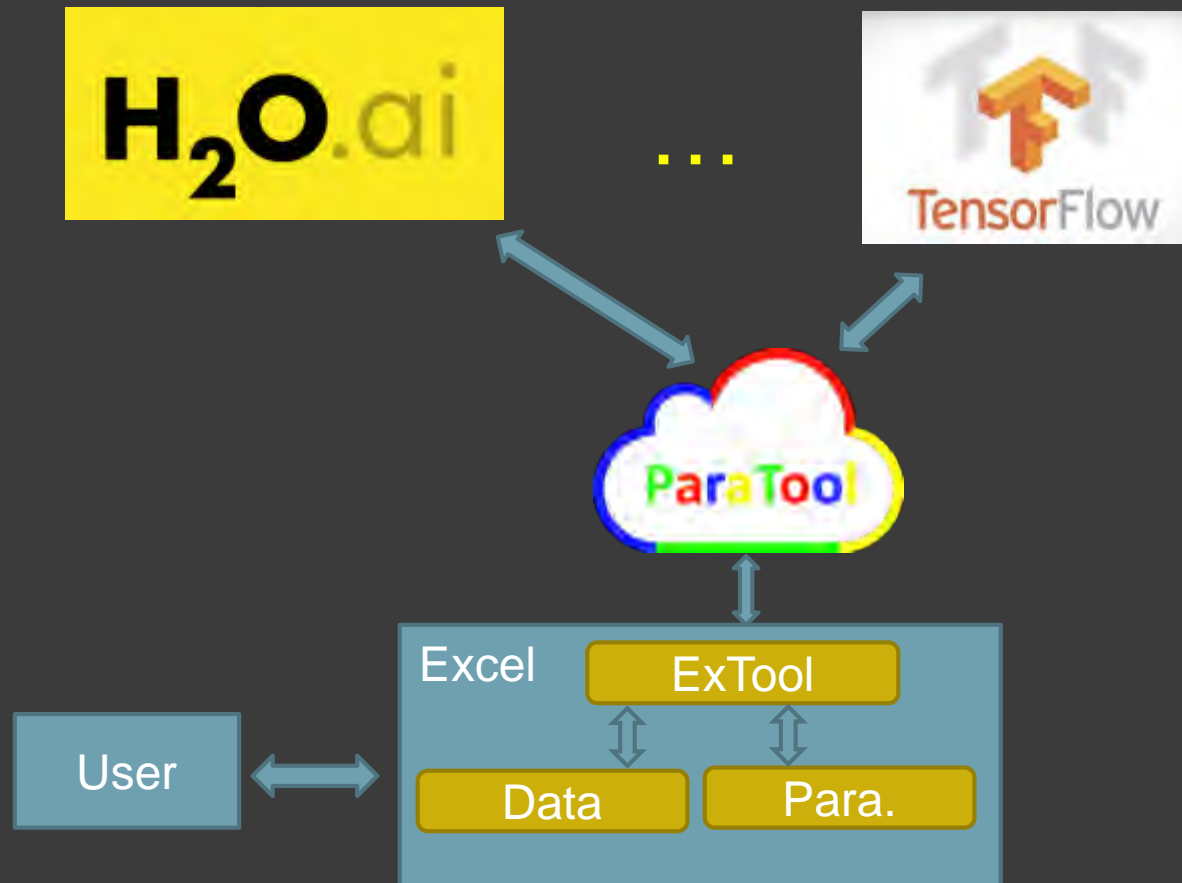


Case Study (Deep Learning Application)

- ◎ Deep learning boom!
- ◎ Open sourced APIs
 - Supervised Learning
 - Unsupervised Learning
 - Hybrid Approach
- ◎ Application
 - speech and audio processing
 - natural language processing
 - image object recognition



Case Study (Deep Learning Application)



- Applications:
 - Medical Study and Prediction
 - Wine Quality Estimate
 - Sports Team Selection
 - Candidate Filtering (Job, Dating...)
 - Decision making using past case studies

Case Study (Deep Learning Application)

- Prostate Cancer Study
 - A subset of data from a study of patient with prostate cancer. Variables measured at the baseline patient exam were used to try to determine whether the tumor had penetrated the prostate capsule

Variable	Description	Codes/Values	Name
1	Identification Code	1 - 380	ID
2	Tumor Penetration of Prostatic Capsule	0 = No Penetration 1 = Penetration	CAPSULE
3	Age		AGE
4	Race		RACE
5	Results of the Digital	1 = No Nodule 2 = Unilobar Nodule (Left) 3 = Unilobar Nodule (Right) 4 = Bilobar Nodule	DPROS
6	Rectal Exam	1 = No, 2 = Yes	DCAPS
7	Detection of Capsular	1 = No, 2 = Yes	PSA
8	Tumor Volume Obtained from Ultrasound	cm3	VOL
9	Total Gleason Score	0 - 10	GLEASON

References:

<https://www.umass.edu/statdata/statdata/data/pros.txt>

<http://search.r-project.org/library/LogisticDx/html/pcs.html>

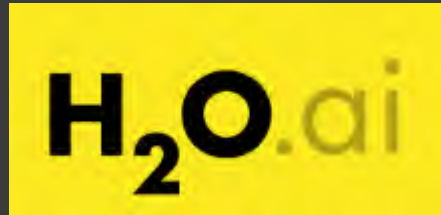
Case Study (Deep Learning Application)

Workflow:

Train model with proven data

Predict with new data

ID	CAPSULE	AGE	RACE	DPROS	DCAPS	PSA	VOL	GLEASON
1	0	65	1	2	1	1.4	0	6
2	0	72	1	3	2	6.7	0	7
3	0	70	1	1	2	4.9	0	6
4	0	76	2	2	1	51.2	20	7
5	0	69	1	1	1	12.3	55.9	6
6	1	71	1	3	2	3.3	0	8
7	0	68	2	4	2	31.9	0	7
8	0	61	2	4	2	66.7	27.2	7
9	0	69	1	1	1	3.9	24	7
10	0	68	2	1	2	13	0	6
11	1	68	2	4	2	4	0	7
12	1	72	1	2	2	21.2	0	7
13	1	72	1	4	2	22.7	0	9
14	1	65	1	4	2	39	0	7
15	0	75	1	1	1	7.5	0	5
16	0	73	1	2	1	2.6	0	5
17	0	75	2	1	1	2.5	0	5
18	0	70	1	2	1	2.6	11.8	5
19	0	54	1	1	2	2.8	0	6
20	1	67	2	3	2	8.6	25.5	7
21	1	58	1	2	1	3.1	0	7
22	1	70	0	4	1	67.1	0	7



ID	AGE	RACE	DPROS	DCAPS	PSA	VOL	GLEASON	CAPSULE
301	70	1	4	1	10	73.8	5	
302	70	1	2	1	5.8	20	6	
303	67	1	4	2	135	0	7	
304	64	1	2	1	8.5	0	7	
305	51	1	2	1	13	0	6	
306	64	1	1	1	7.2	10.9	6	
307	68	1	3	1	11.8	0	5	
308	66	1	3	1	4.8	8.8	7	
309	69	1	1	1	14.3	67.1	4	
310	67	1	3	1	18.1	0	8	
311	78	1	1	1	5.2	29.1	5	
312	75	1	4	1	9.9	16.3	5	
313	59	1	3	2	12.9	0	6	
314	64	1	1	1	22	0	5	
315	74	1	3	1	9	41.8	7	
316	73	1	4	1	14	0	7	
317	57	2	3	1	7.8	38.9	7	
318	71	1	1	1	4.8	14	7	
319	66	1	2	1	58.6	0	7	
320	64	1	2	1	2	0	6	
321	64	1	3	1	8.7	17.2	7	
322	62	1	4	1	4.6	0	6	
323	63	1	3	1	0.7	18.6	5	
324	64	1	4	1	24.1	0	6	
325	70	1	1	1	5.3	73.7	5	
326	69	1	1	1	6.3	0	5	
327	75	1	1	1	4.8	26.3	7	
328	52	1	2	1	2.2	11.5	6	
329	62	1	2	1	7.4	0	6	
330	71	1	2	1	4.6	48.7	5	
331	60	1	2	2	11.4	0	7	

Prostate Cancer Study data set
 SIZE: 380 observations, 9 variables

Consistent High Rate of Correct Prediction
 for Various Applications (70-90%)

Case Study (Statistical Tools)

- Commercial Software Problem
 - Big function packages, Complicated interface, High entrance barrier
 - Generalized function, lack of customized function
- Solution
 - Customized solution with ParaTool platform



Case Study (Statistical Tools)

⦿ Packaged Statistical Tools using R module

- Basis Statistics
- Regression Analysis
- ANOVA
- Time Series Function

Descriptive Statistics

Linear Regression
Logistic Regression

Correlation Test
Normality Test
Outlier Test
Time Series
T-test

One Way ANOVA CRD
One Way ANOVA
RCBD

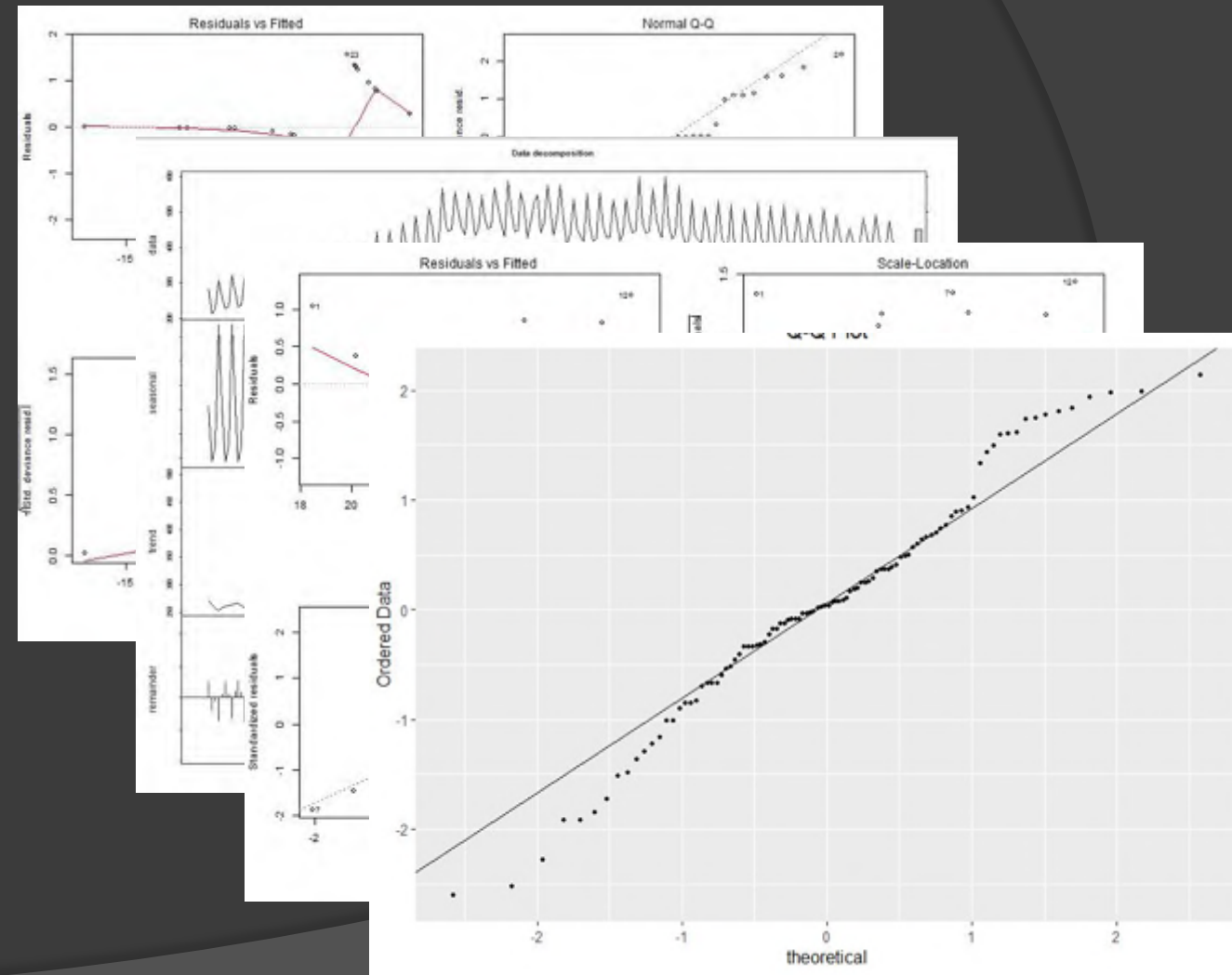
Case Study (Statistical Tools)

Related A: [Excel_ListSelectedRanges](#)

Input Parameters		
Name	Value	Note
rawdata	LogisticRegression1	Could be a data range, local csv file or an online csv file
response	REMISS	
predictor	CELL, SMEAR, INFIL, LI, BLAST, TEMP	

	sample data	REMISS	CELL	SMEAR	INFIL	LI
		1	0.8	0.83	0.66	1.5
		1	0.9	0.36	0.32	1.4
		0	0.8	0.88	0.7	0.8
		0	1	0.87	0.87	0.3
		1	0.9	0.75	0.68	1.5
		0	1	0.65	0.65	0.4
		1	0.95	0.97	0.92	1.5
		0	0.95	0.87	0.83	1.5
		0	1	0.45	0.45	0.8
		0	0.95	0.36	0.34	0.5
		0	0.85	0.39	0.33	0.5

- Logistic Regression
- Time Series
- One Way ANOVA
- Normality Test



Case Study (Excel Automation)

◎ Pro:

- Microsoft's killer app
- Excel is dominative office productivity software
- Easy to use, industry standard

◎ Problem:

- Lack of specialized function
- Lack of customized solution
- Weak security feature

Case Study (Excel Automation)

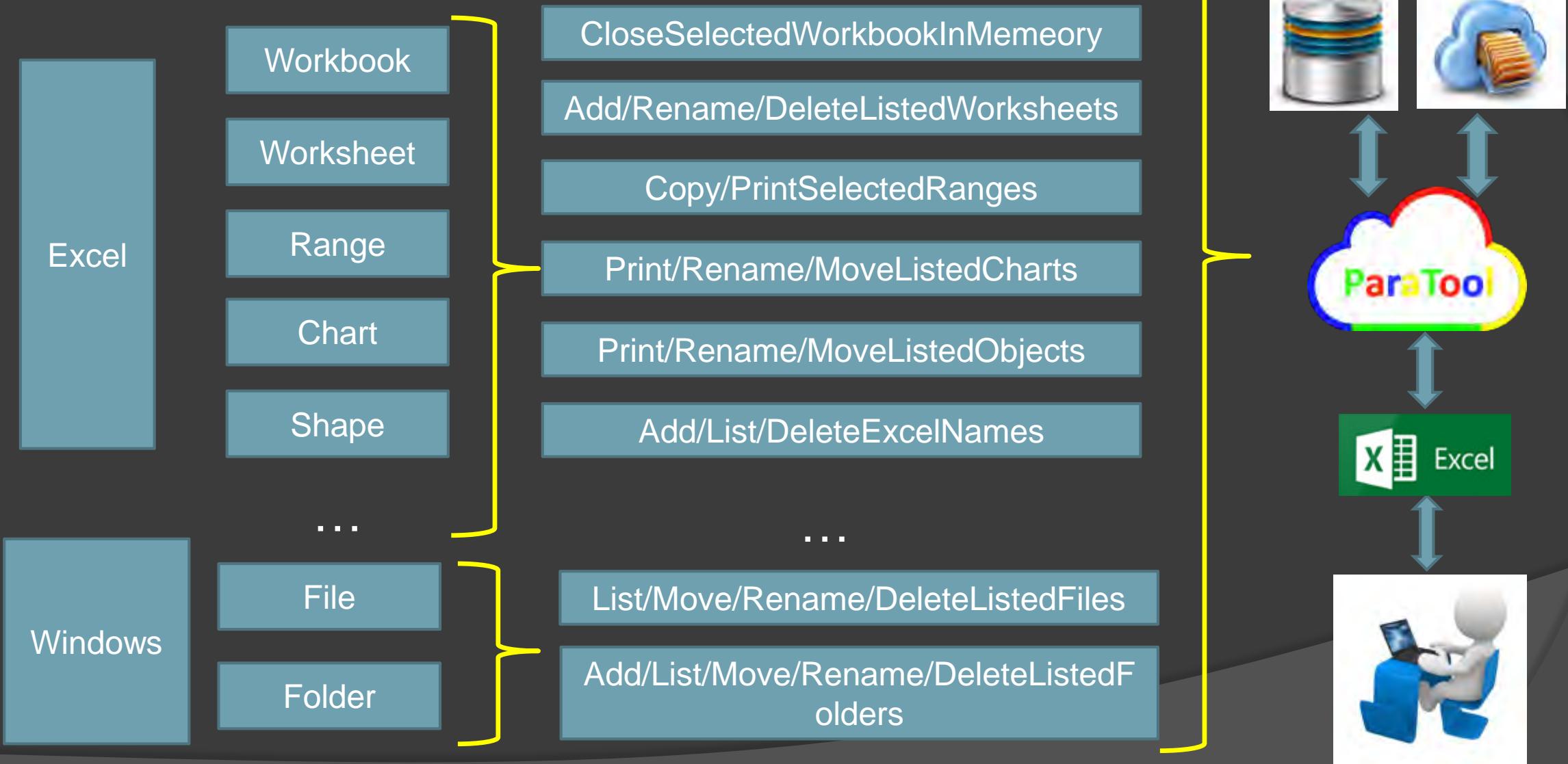
◎ Solution

- Object oriented modular apps (microservices)
- Cloud based customized app deployment
- Cloud based customized knowledgebase and template
- Cloud based user-app management

◎ Results

- Excel GUI time reduced by half for mixed office tasks package.
- Peer2Peer development and support ecosystem established.

How it works



Case Study (Business Intelligence)

Existing Solutions

- Tableau, Power BI
- Matlab
- Excel



Problem?

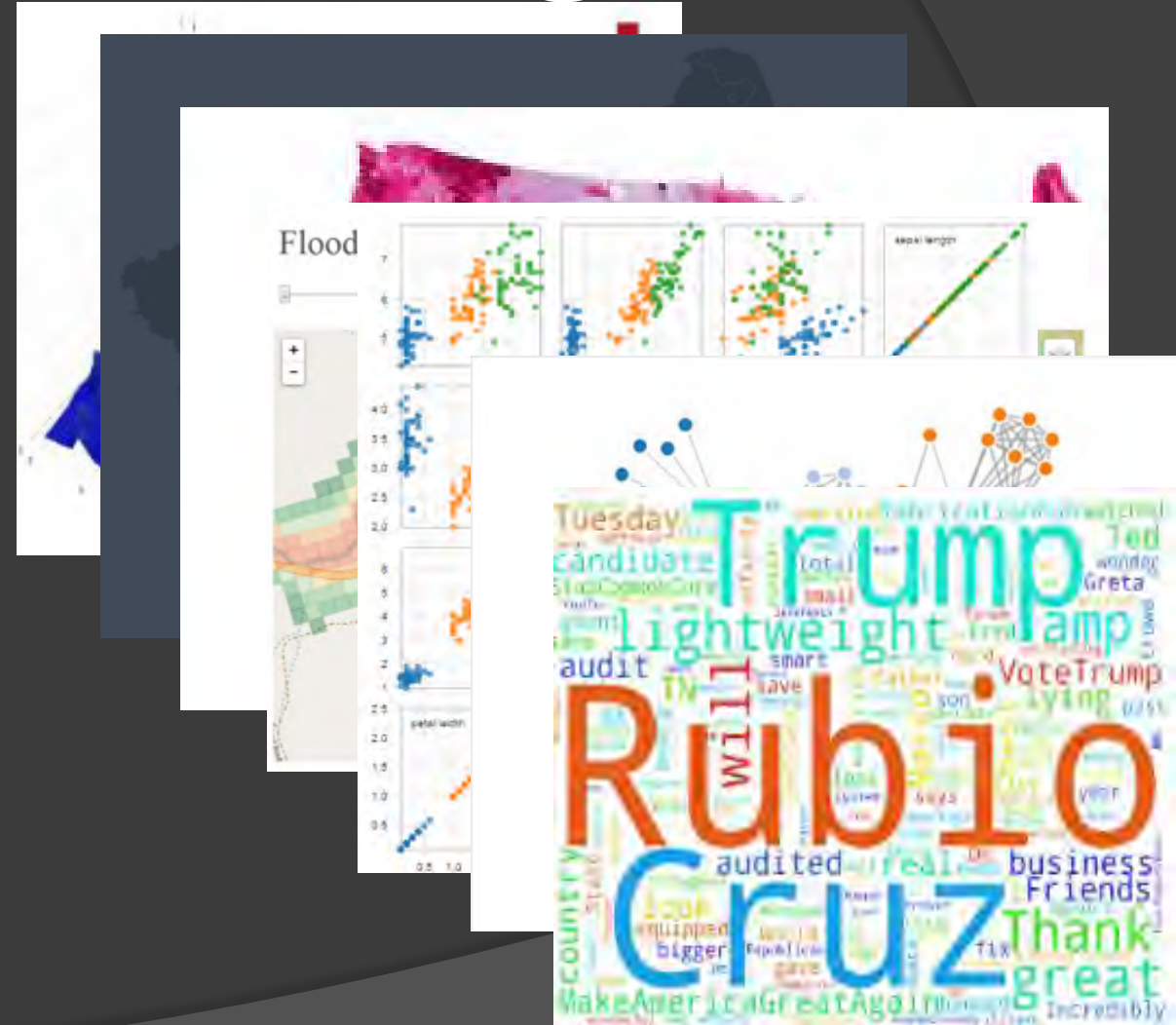
- High initial cost
- Long learning curve
- Customized needs not met



Case Study (Business Intelligence)

◎ Solution

- 3D presentation
- Enterprise chart
- GIS plot
- Interactive chart
- Statistical analysis and plot



How does it go?

- ① Get to Know Us / Help Us /Join Us
 - Ecosystem built up
 - Developers
 - Users
 - Distributors
 - Next Step
 - Investors
 - Advisors

CLOUD TECHNOLOGY FOR MORE PRODUCTIVE WORK



ParaTool Software