OPENSIM TECHNOLOGY

OpenSim Technology

Adolfo Rodriguez

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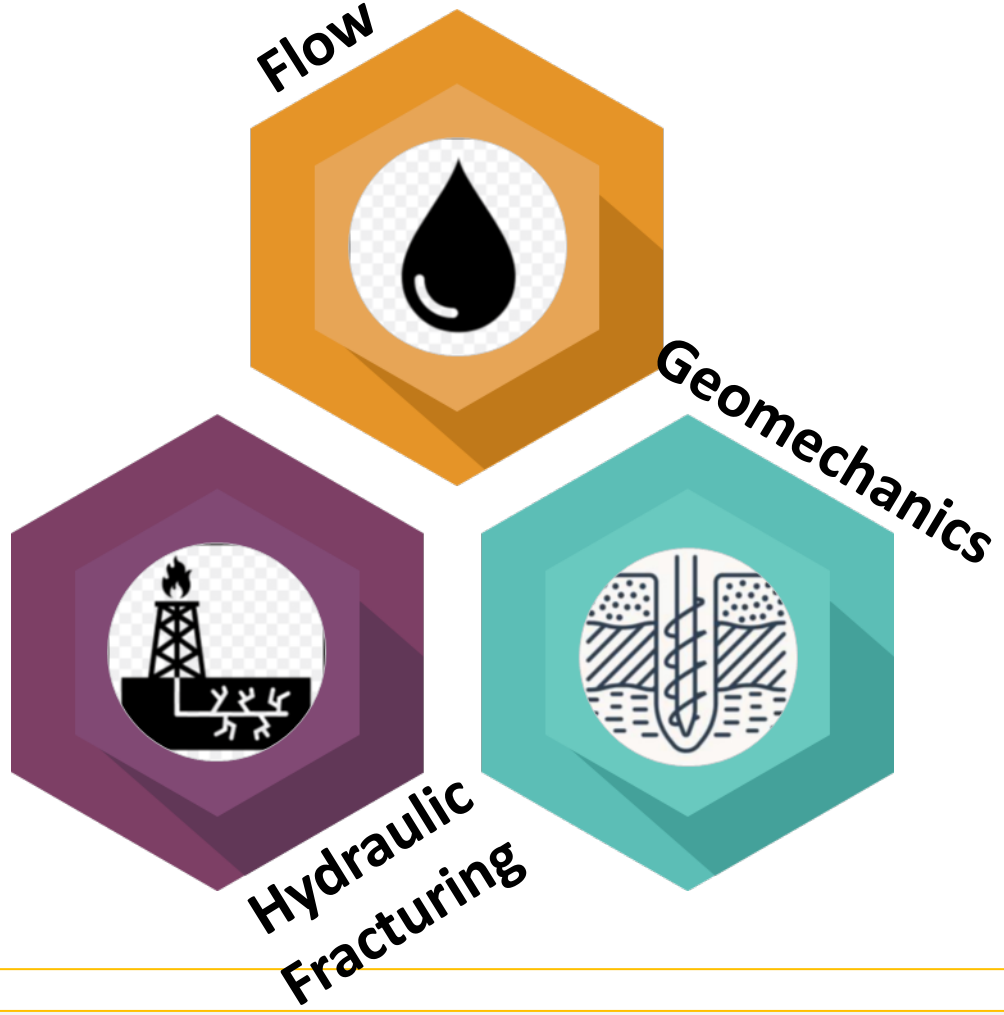
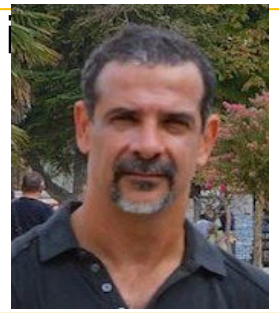
Description / Image of the Product



OpenSim:

- Integrated Reservoir Simulator with similar capabilities of Eclipse Black-Oil and/or Compositional Simulators.
- Fully integrated with Geomechanics and Hydraulic Fracturing Simulation.
- Easy to customize and integrate into customer's workflows.
- Validated with several public domain benchmark cases

Team Members & Brief Bios

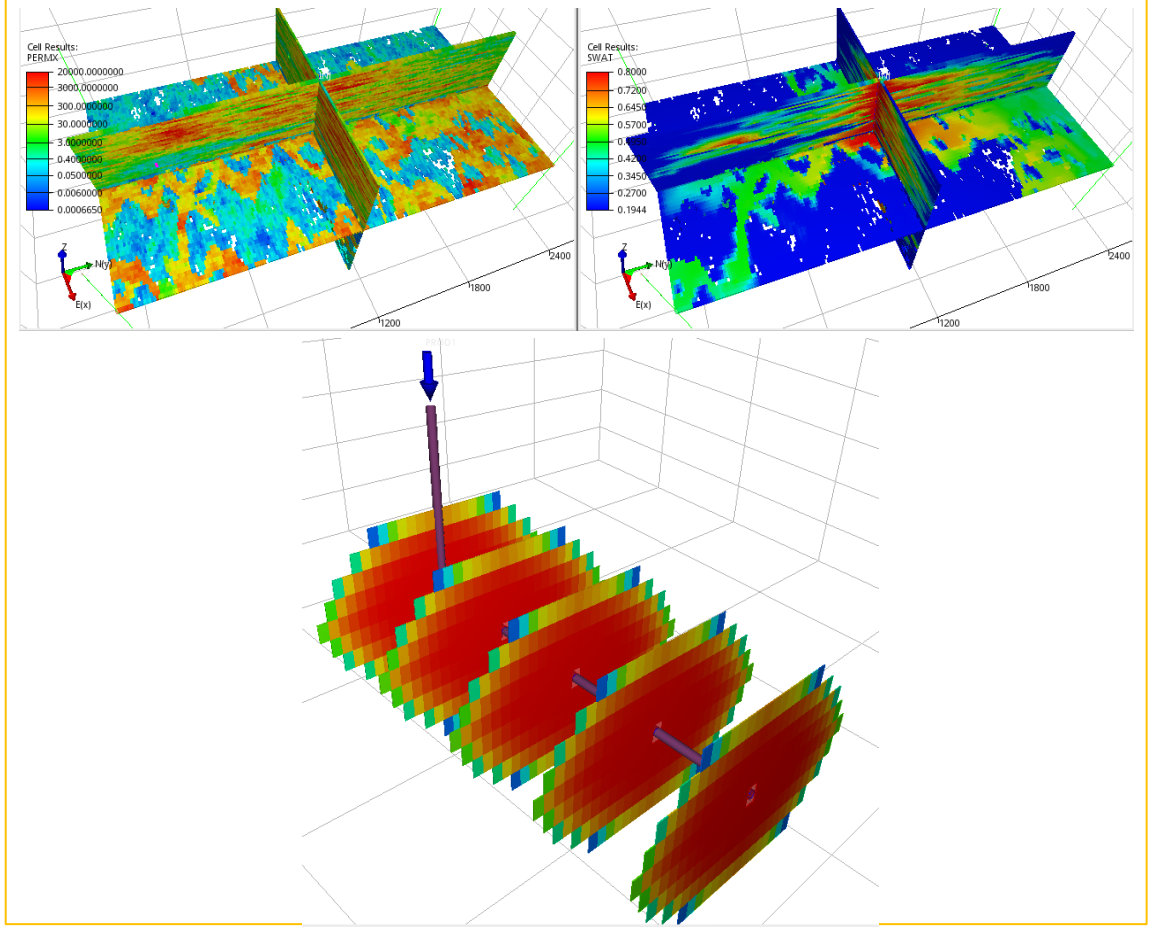


- Adolfo Rodriguez, Co-Founder
- PhD Physics
- 20 years experience in Geomechanics
- Past work: ConocoPhillips, UT-Austin, PDVSA

- Jorge Monteagudo, Co-Founder
- MSc, PhD Chem. Eng.
- 20 years experience in Reservoir Simulation
- Past work: ConocoPhillips, RERI, PetroPeru

- Nathalie Nieto, IT Support
- BSc Computer Science
- 8 years experience as Java consultant
- Past work: TCS Consulting Solutions, Mobile-Globe (France)

Our Mission

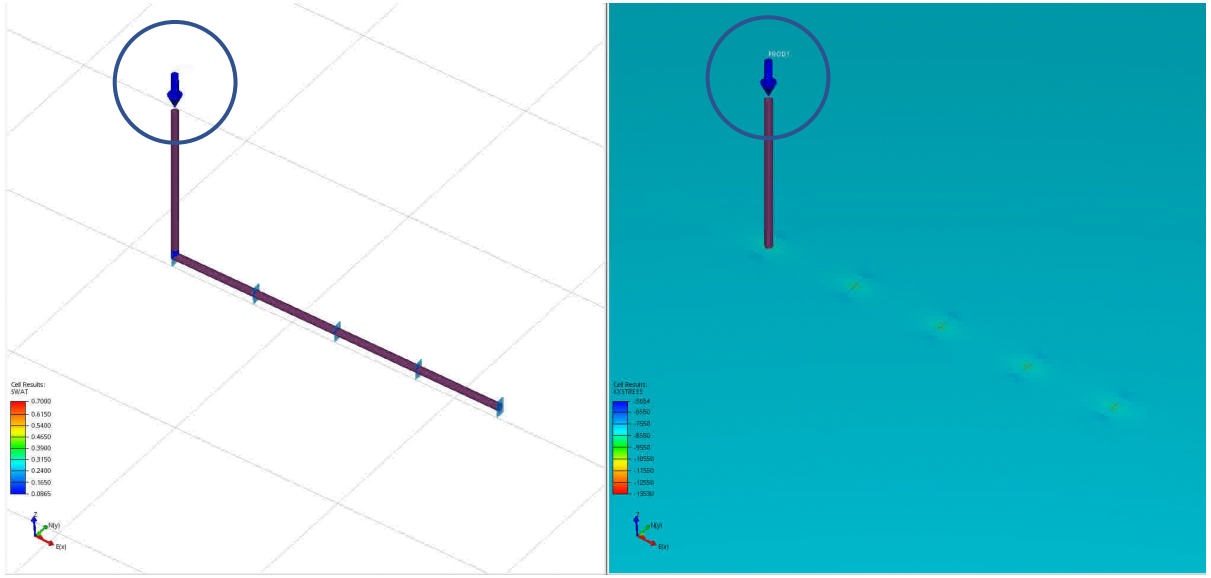


To develop state-of-the-art tools for Reservoir Simulation, Geomechanics and Hydraulic Fracturing with focus on integration, flexibility and short innovation cycles.

What we want to achieve

Water Saturation

Stress in the x-direction



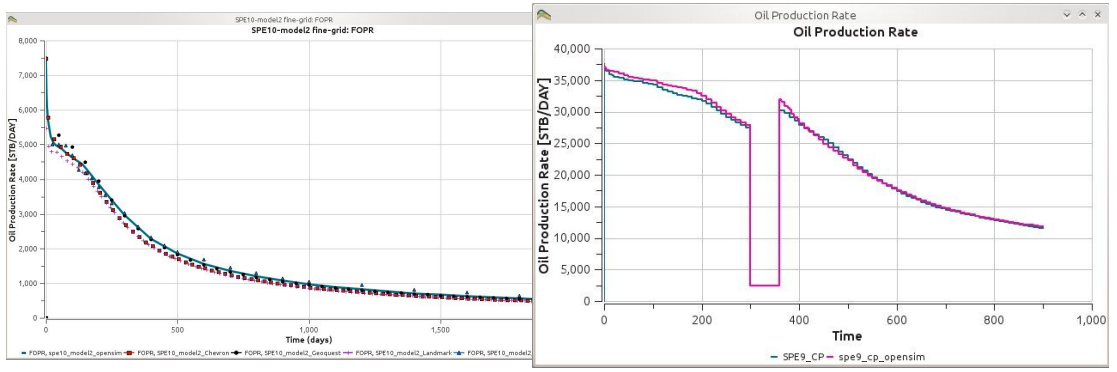
Fracturing-to-production Simulation

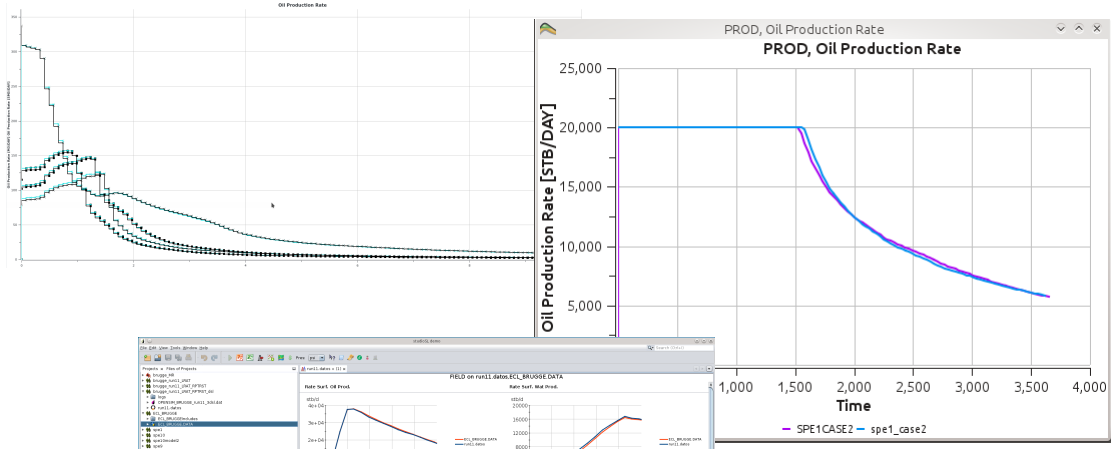
- Full physics fracturing-to-production simulation.
- Fully integrated reservoir, geomechanics and hydraulic fracturing simulation.
- Apply to advanced recovery processes such as huff-n-puff.

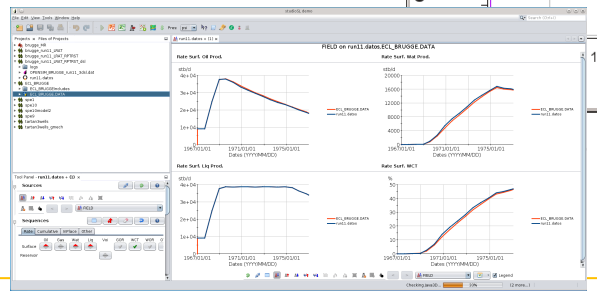
This is our technology or process

- Efficient proprietary simulator written in Fortran.
- Handle most relevant physics.
- Test and validate using public data
- Pre- and post- processors leverage on open source libraries.
- High-level Python implementation with open-source leverage.

How will it work? Is it working now?







- The simulator has been tested and validated using well-known public datasets (Full SPE10 runs in 4h on a single core).
- Geomechanics coupling has been implemented and tested.
- Runs on Linux and Windows.
- Server and node-locked licenses are available.
- It has been integrated with third-party software.

Short and Long-term plans

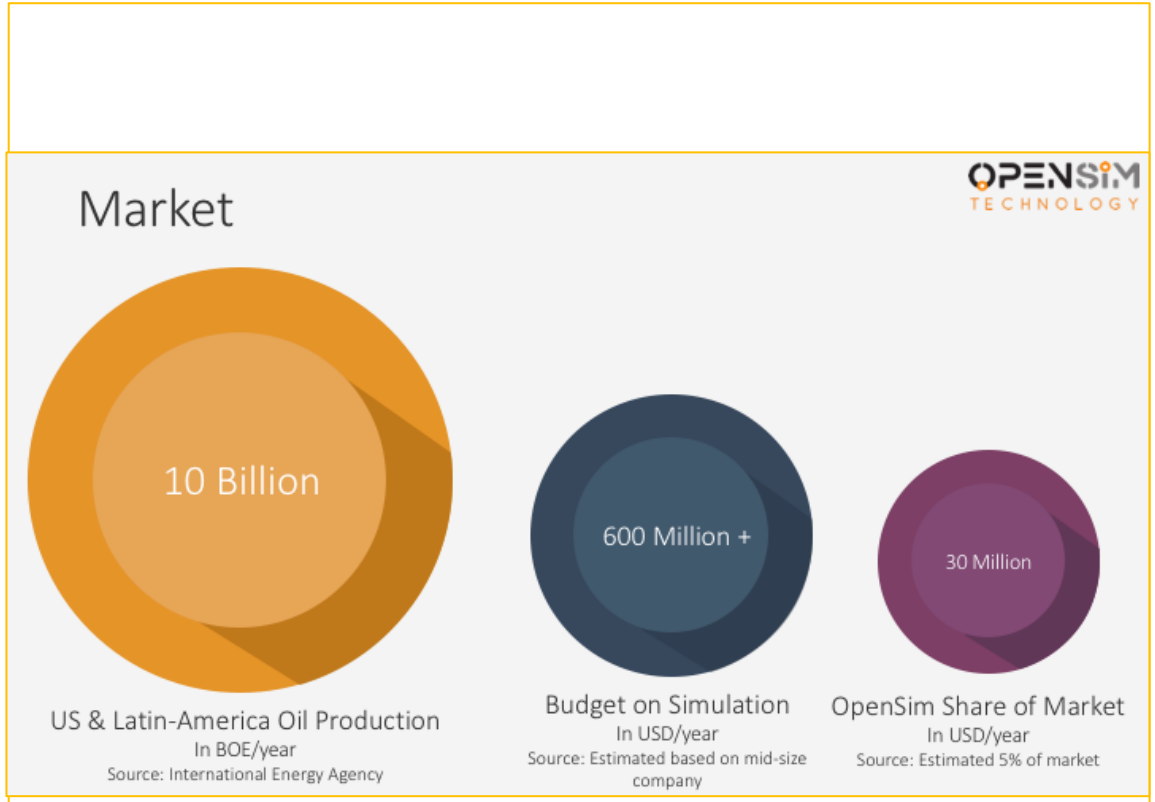
Short Term

- Basic Functionality in place by 2Q 2019
- Commercialize Product to generate revenues or obtain Funding.
- Engage on collaborative projects with oil and gas companies.
- Growth team from 3 to 6 people to accelerate new features and product customization.

Long Term

- Reach 5% of the reservoir simulation market
- Growth the company to 10-15 people.
- Produce Hybrid solutions: Simulation/AI
- Customizable workflows using the concept of Rapid Prototyping

Our Market

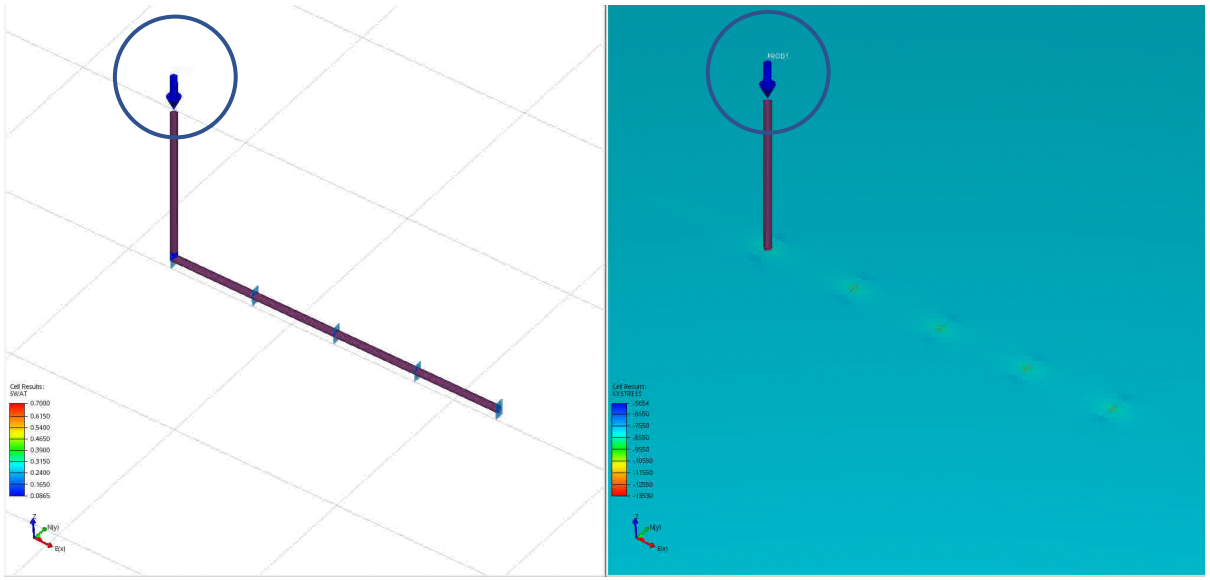


- US & Latin-America market
- Small and Mid-Size Oil Companies
- Conventional and Unconventional Assets
- Initial target: 5% of the market in 5 years.

SWOT Analysis

- Strengths
  - Experience of 40+ years
  - Innovation
  - Python ecosystem
  - Open Source Leverage
  - High Tech, Low Cost Solutions
- Weaknesses
  - Small Team
  - Lack of funding
- Opportunities
  - Recovery factor in Unconventionals is very low (< 10%).
  - Integrated multi-disciplinary solutions are in demand.
  - Hybrid solutions: Simulation+AI
  - More Physics required: Geomechanics, EOR, Phase Behavior
- Threats
  - Competition may reach the same objective
  - Oil Price goes down (again)

Contact information



OpenSim Technology

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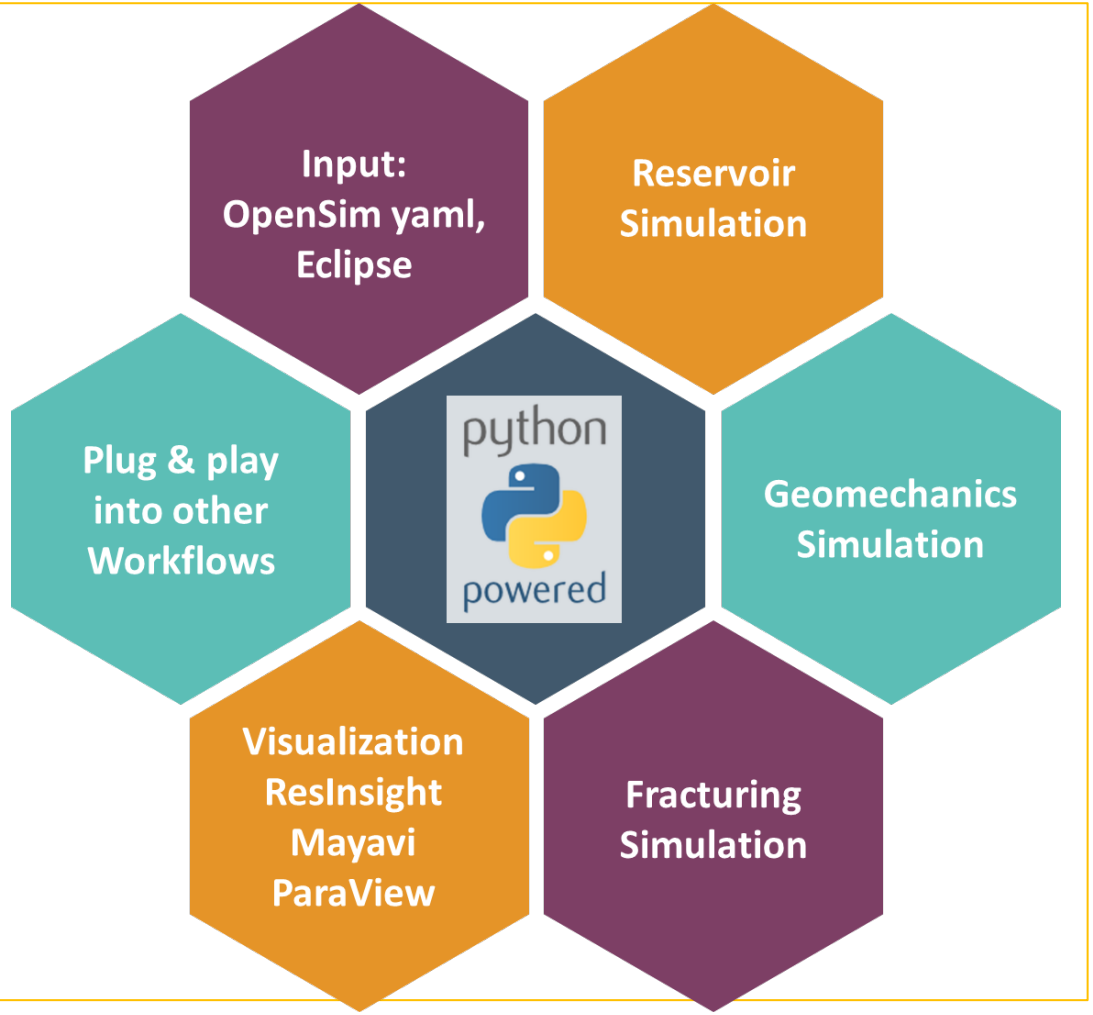
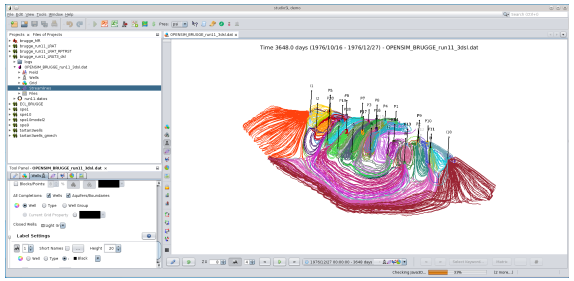
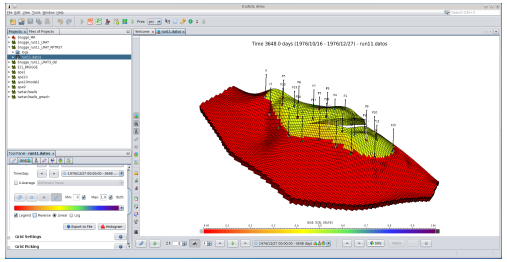
This is our mission

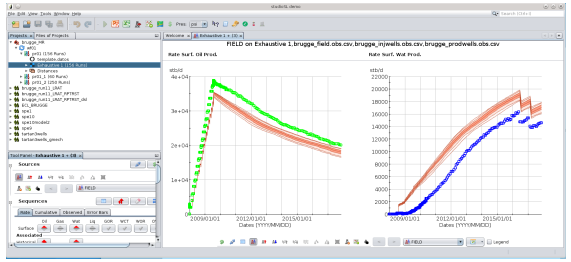


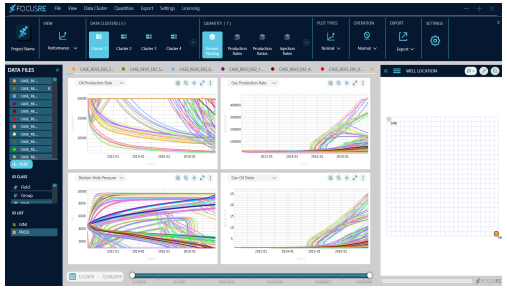
To develop state-of-the-art tools for Reservoir Simulation, Geomechanics and Hydraulic Fracturing with focus on integration, flexibility and short innovation cycles.

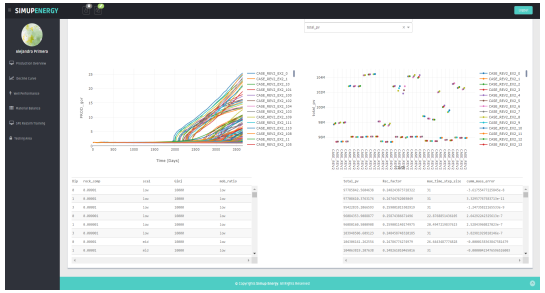
Here are examples of successes





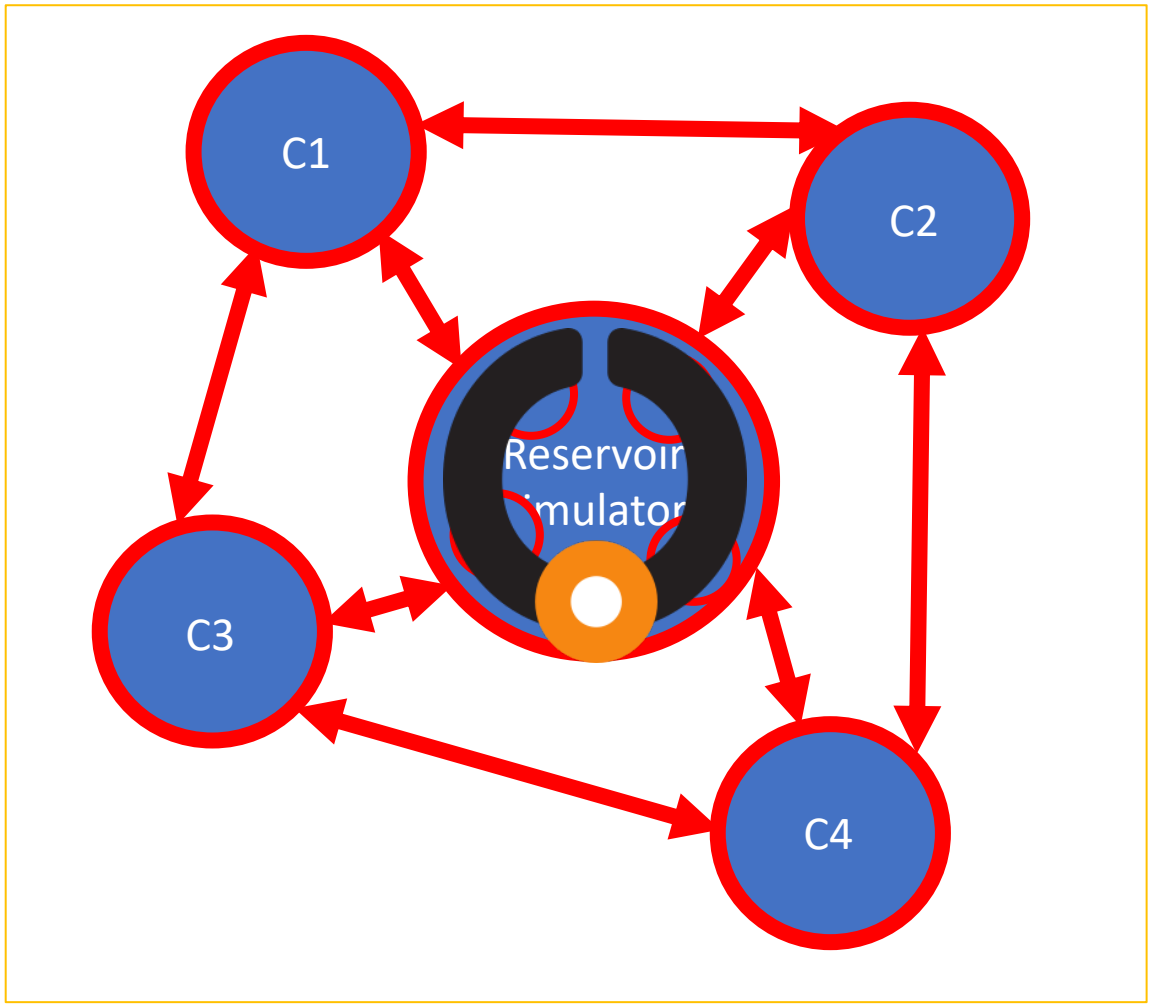


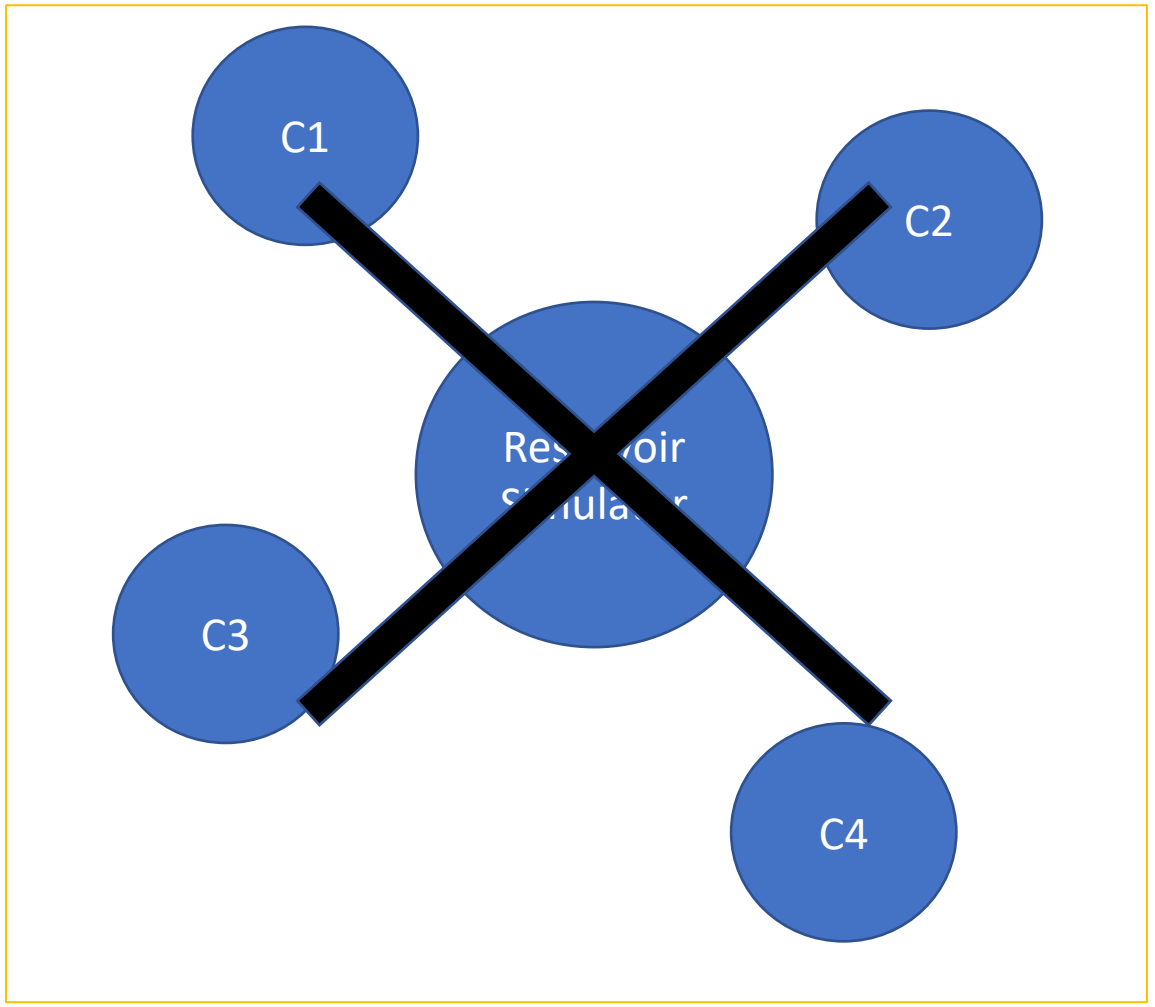




- With StreamSim Technologies:
  - Incorporation of OpenSim into StudioSL platform
- With Primera Resources:
  - Visualization and Analysis dashboards of ensembles of OpenSim simulation results, using FocusRE and SimUp tools.
- Have successfully ran most benchmark cases. Full SPE10 runs in about 4 hours on a single processor

This is our vision





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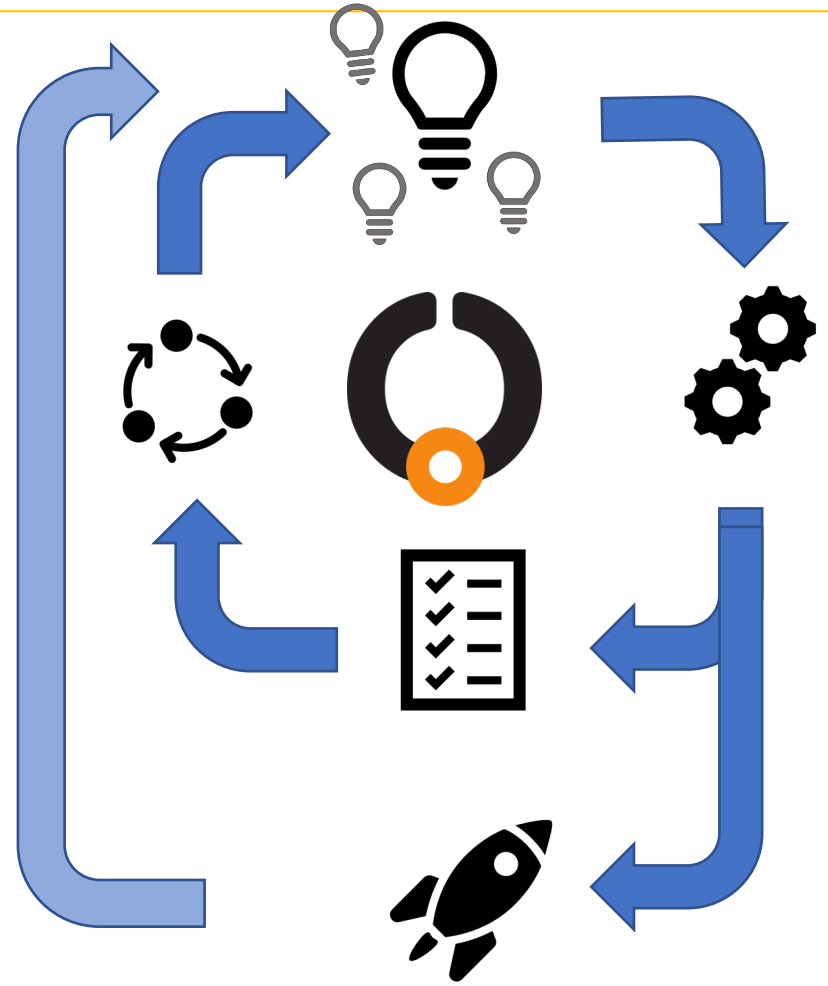

- To create a new paradigm for reservoir simulation.
- To empower engineers and managers.
- Reduce the time required for innovation cycles.
- Provide Building blocks for rapid prototyping.
- Leverage on open-source technology

Action Steps

1. Find key partners
2. Increase outreach
3. Explore funding options
4. Provide demo licenses
5. Participate in meetings and conferences.
6. Implement additional capabilities