

Seamless Visions, Seamful Realities

Anticipating Rural Infrastructural Fragility in Early Design of Digital Agriculture



Gloire Rubambiza, Phoebe Sengers, Hakim Weatherspoon
Cornell University

Seamless Visions, Seamful Realities

Anticipating Rural Infrastructural Fragility in Early Design of Digital Agriculture



Gloire Rubambiza, Phoebe Sengers, Hakim Weatherspoon
Cornell University

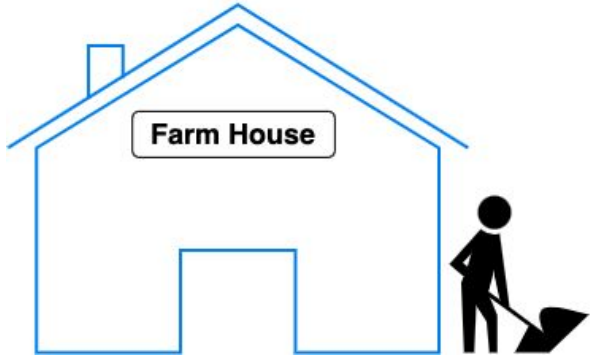
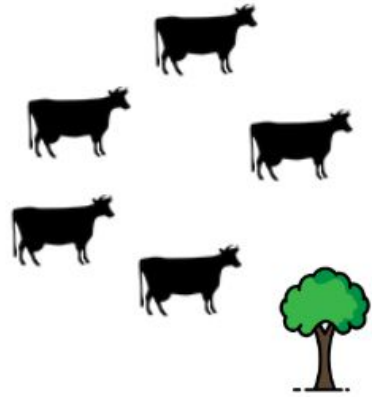
Addressing Rural Infrastructural Fragility

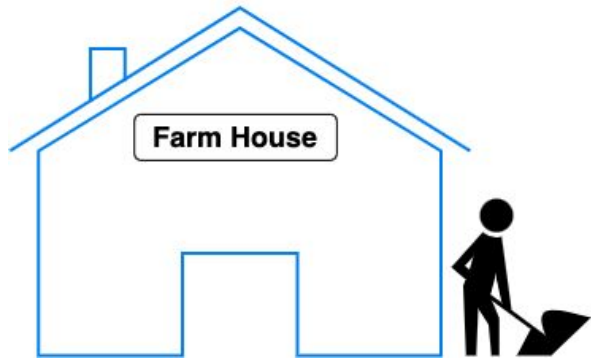
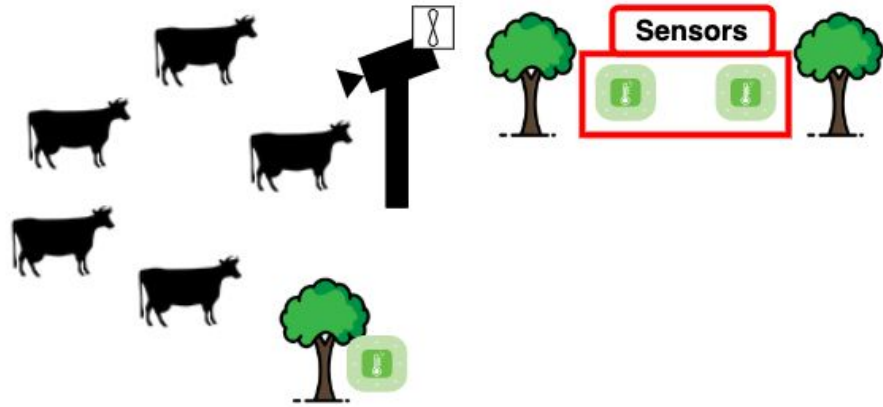


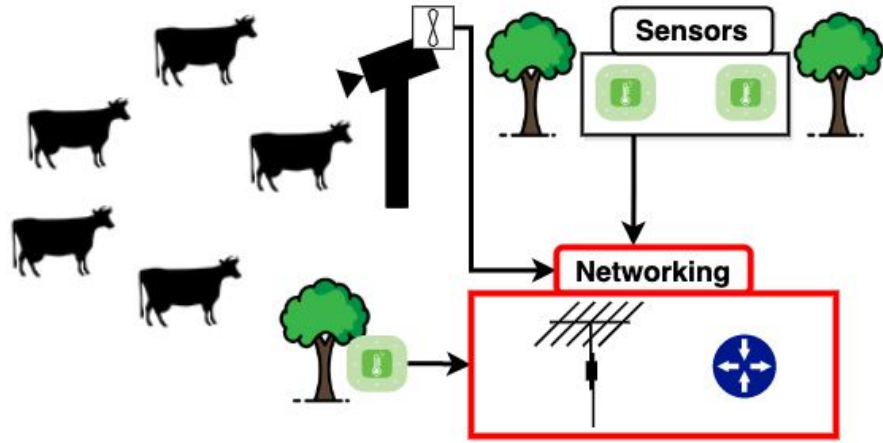
Thinking Relationally about Digital Inequality in Rural Regions of the US. Jenna Burrell. 2018

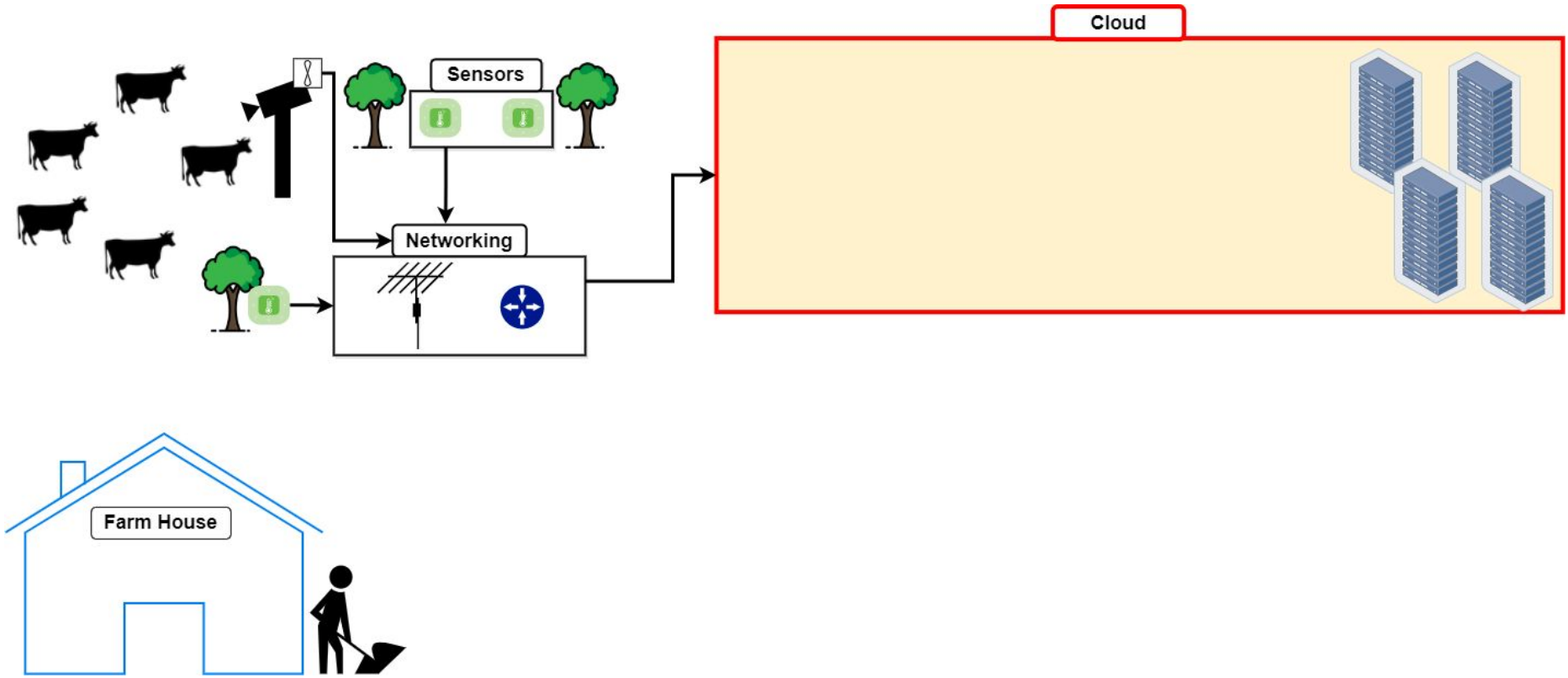
How does networking
research reproduce
infrastructure fragility?

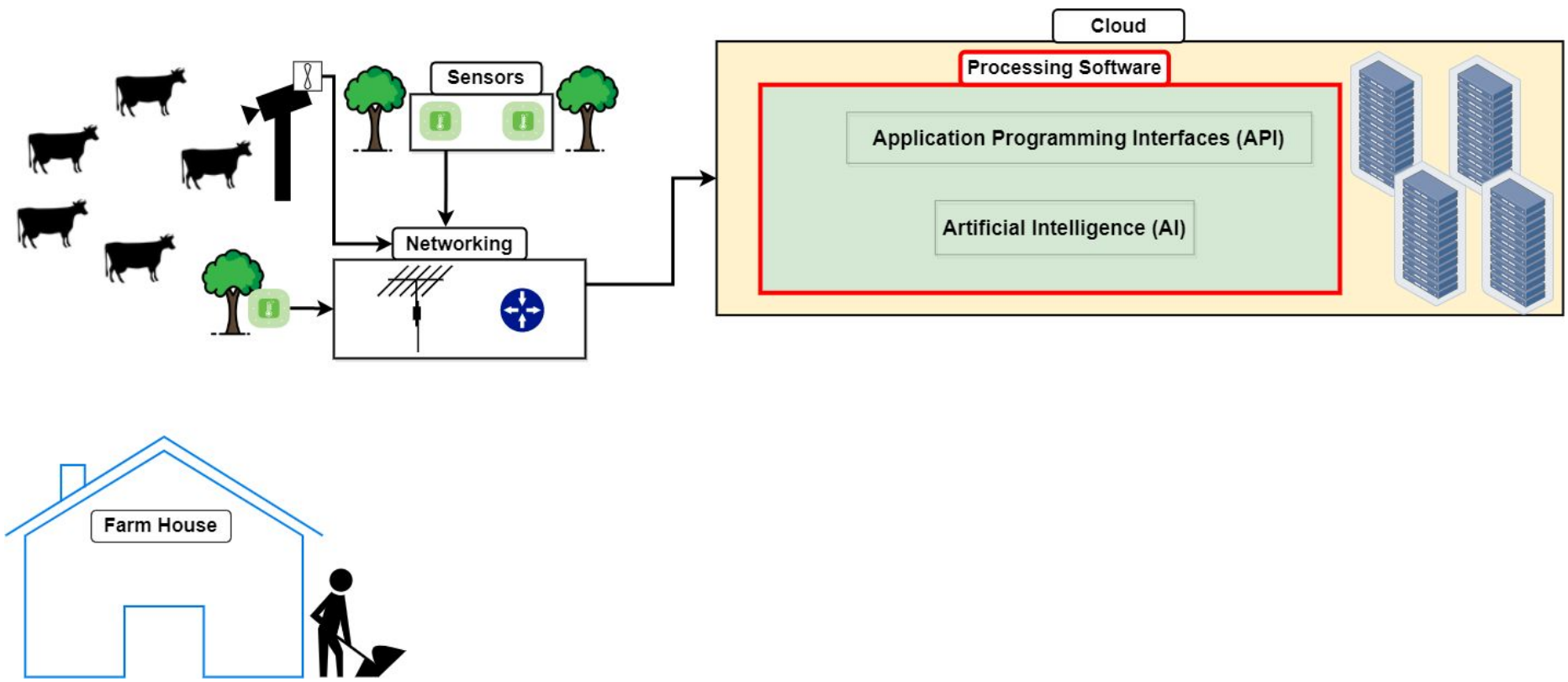


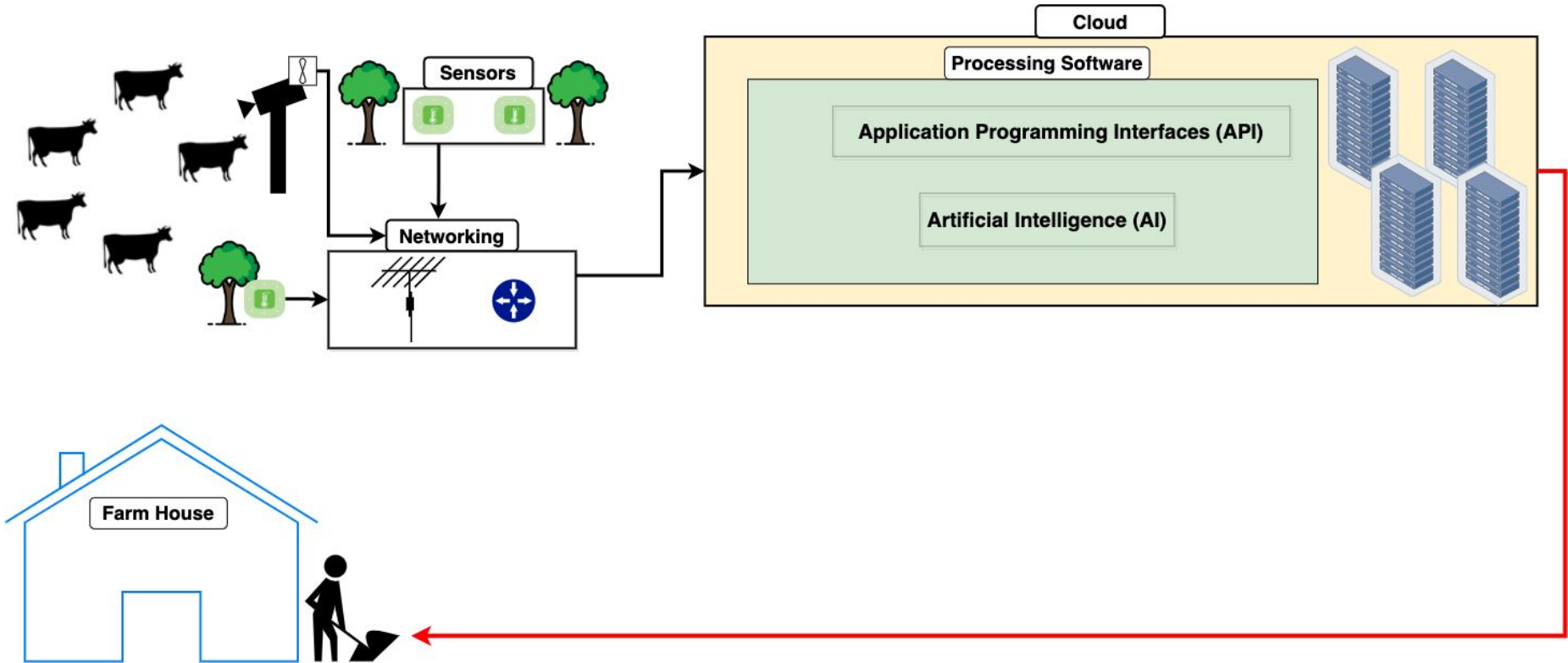








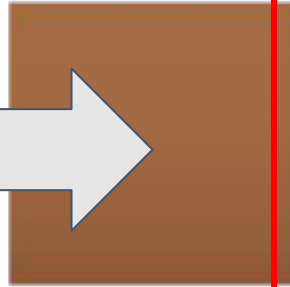
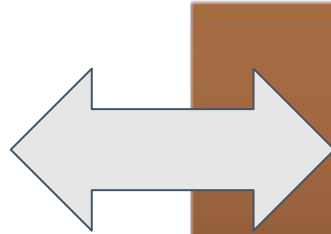


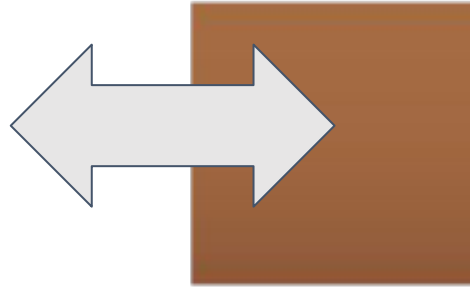


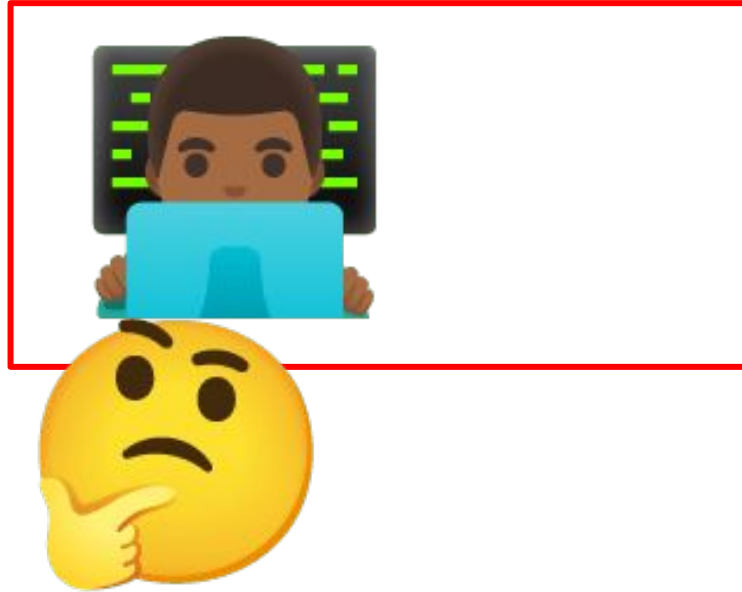
Approach

Values and societal considerations are built-in at the early stages









Methods





Research Questions

Anticipating potential fragility in rural networking infrastructure

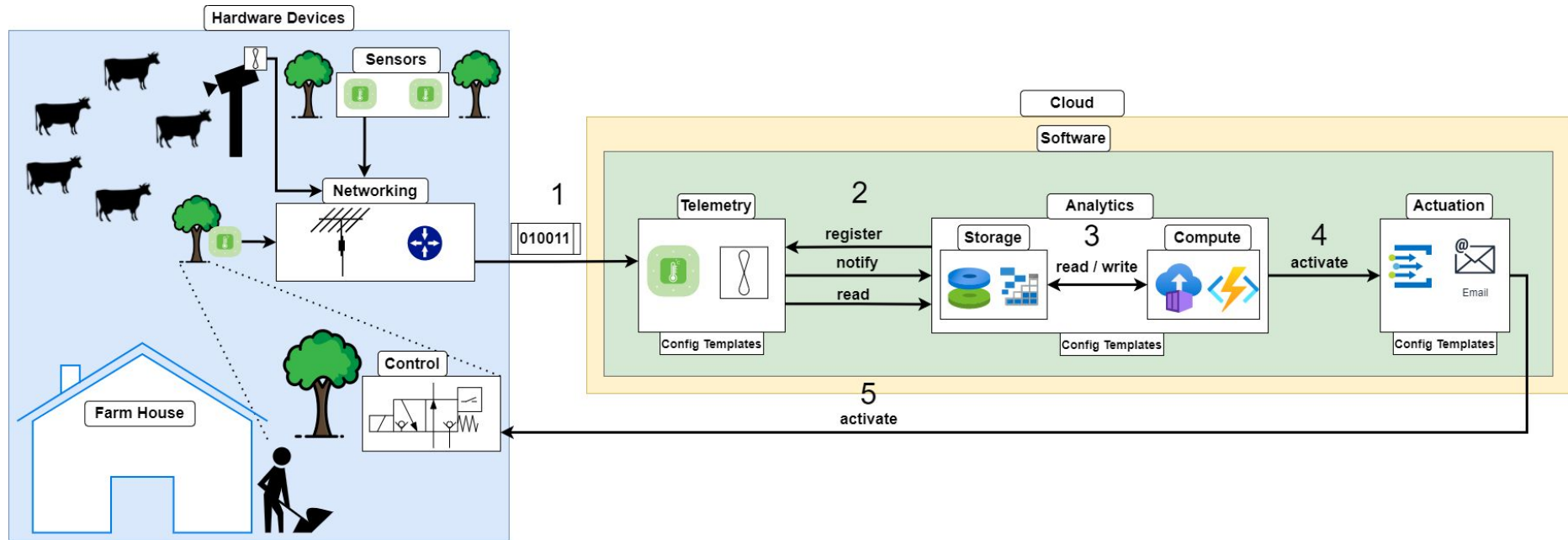


Anticipating potential
fragility in rural networking
infrastructure

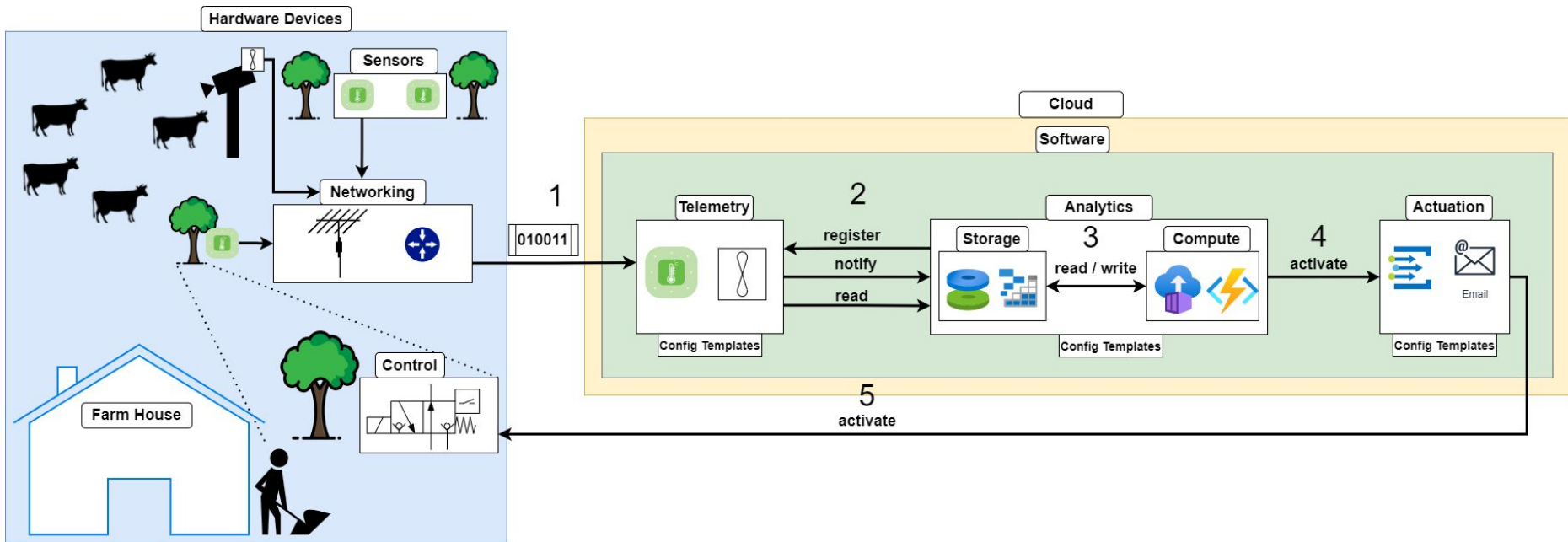
Consequences of early
visions on eventual fragility
of infrastructure

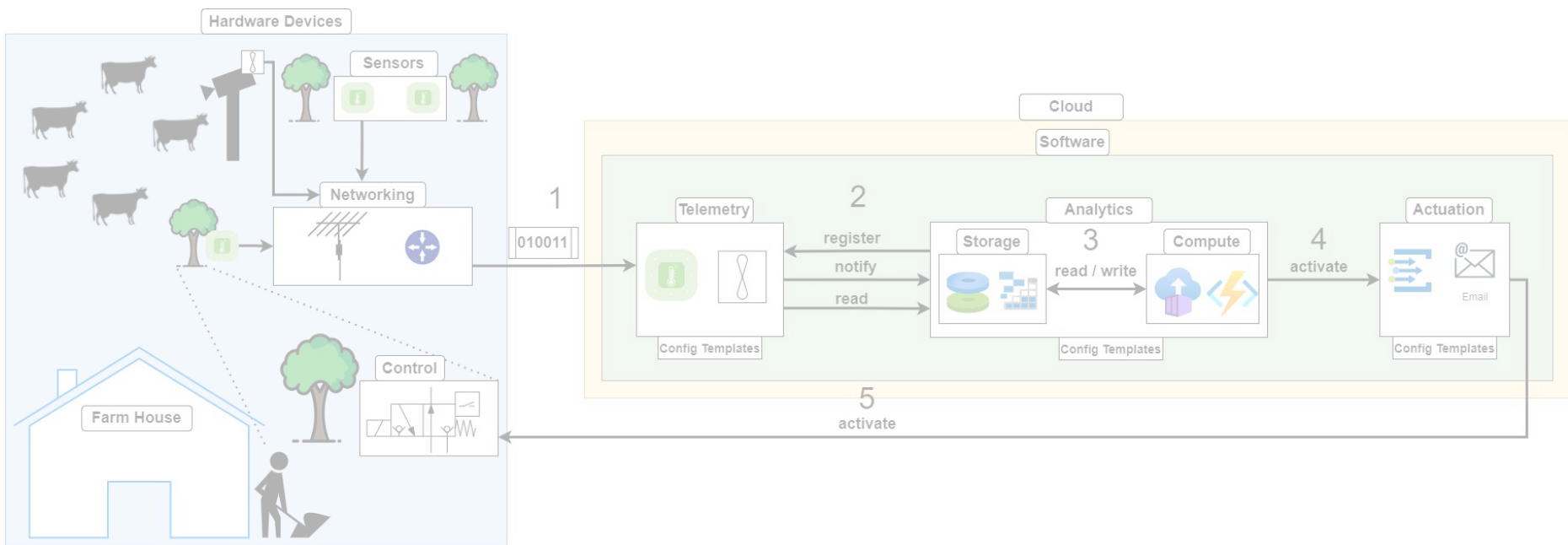


Case Study: The Software-Defined Farm (SDF)



Findings: Seamless Visions





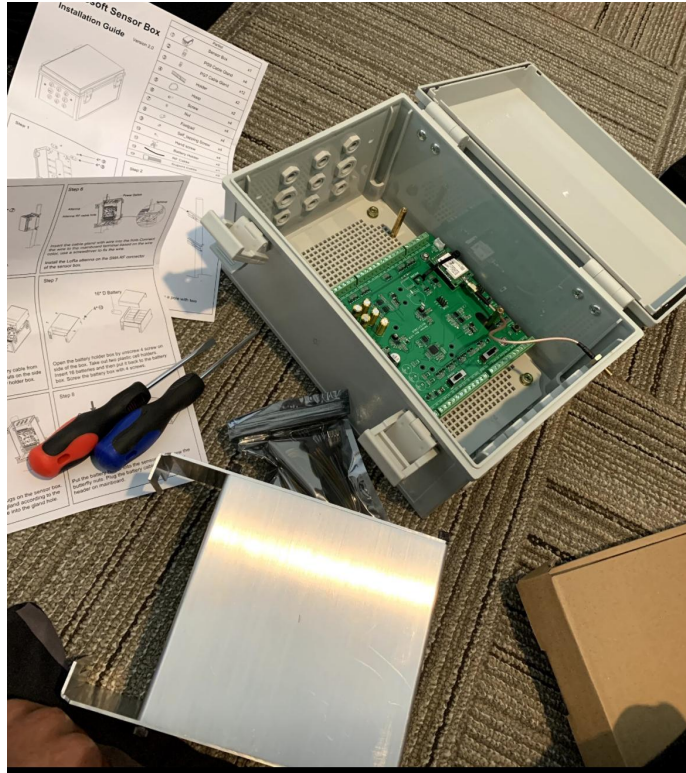
“<X> is one of the first products that actually delivers on the idea that **you install it, you put batteries in [the sensors], you go home and see the data**” (P5)

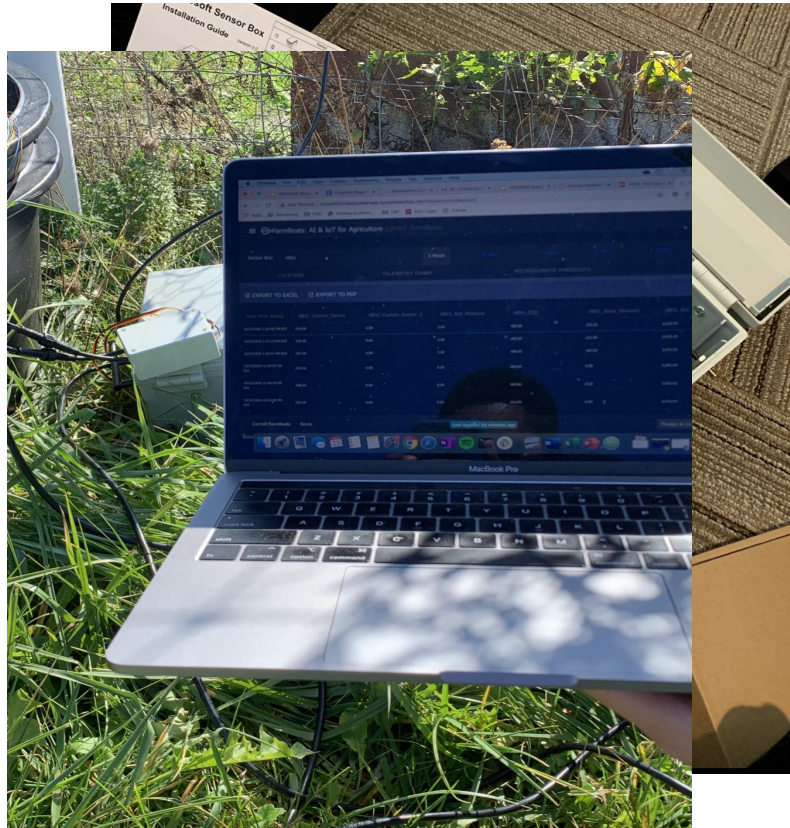
Findings: Seamful Realities



“For the first week, I was connecting into the debug pins, rather than the actual pins to communicate to it. And I was pulling my hair like why I’m not able to read anything when I send to find out the version command” (P2)



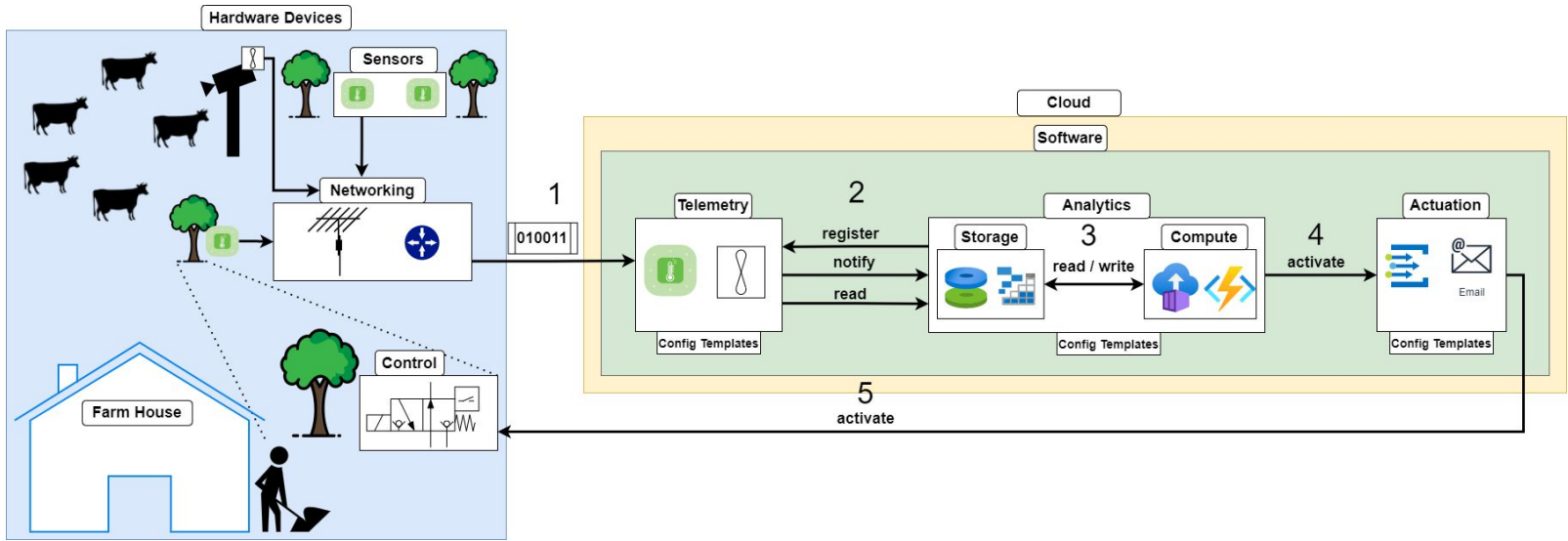








Maintaining Faith in Seamlessness Despite Seamful Realities



Disappearing Seams

Incidental work that does not contribute to generalizable knowledge claims



Hidden Seams

Our organizations shield us from geographical, financial, and other considerations



Distant Seams

Disciplinary separations place day-to-day farm realities out of our anticipation



Implications for Design

Aim for a more artful
management of seams

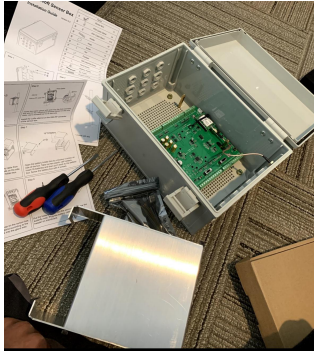
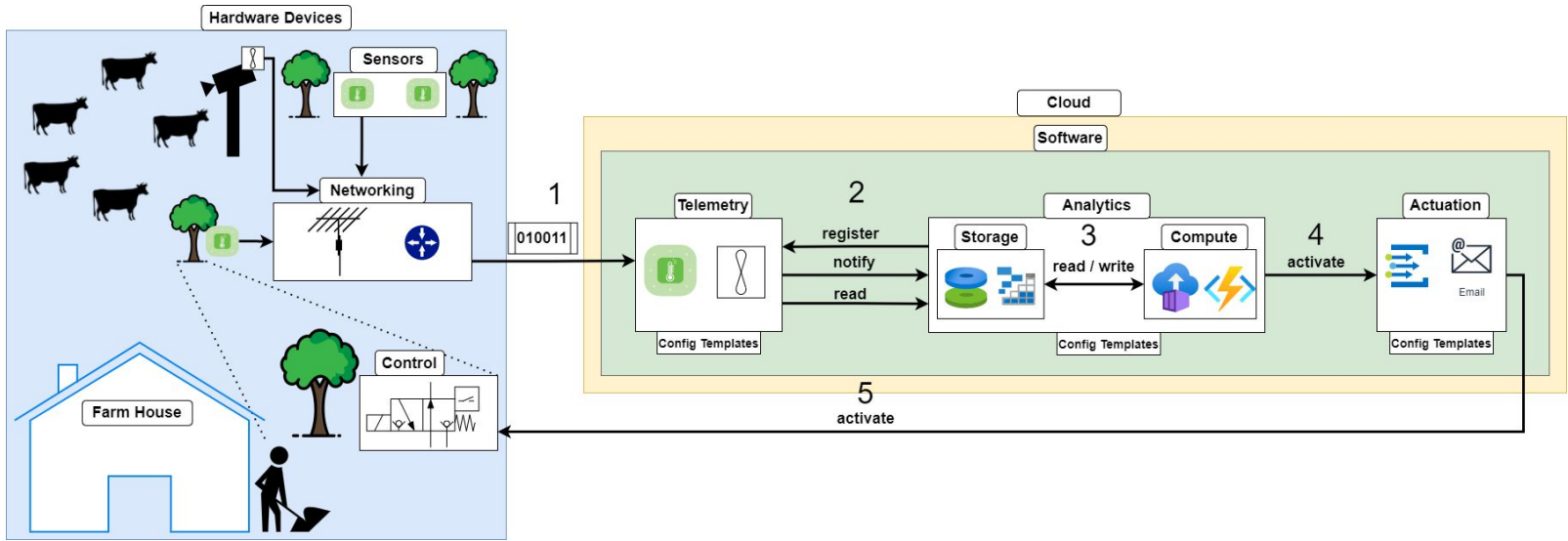


Support the right to tinker

Document early grunt work and its effects

Bridge gulf between research labs and commercial farms

Conclusion





Gloire
Rubambiza
gloire@cs.cornell.edu



Phoebe
Sengers
sengers@infosci.cornell.edu



Hakim
Weatherspoon
hweather@cs.cornell.edu