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FAST FORWARD 2021
ATLANTA, GA
OCTOBER 11-14
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UNLEASH THE POWER OF LIMITLESS CONNECTIVITY
2021 Fall Technical Forum
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Operational Transformation

Having the Whole Company in a Bag

Ian Oliver

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Versant Solutions Group

2021 Fall Technical Forum
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VIRTUAL EXPERIENCE
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Business and Operational Challenges

- New transmission technologies offering excellent performance but making the capex decision-making process more challenging
- A network footprint that comprises relatively dense urban, medium-density suburban, and low-density rural environments, requiring unique design considerations
- The need to deploy network upgrades in the shortest possible time to maximize ROI and to keep customers satisfied
- Very long lead times for delivery of equipment and materials which is causing painful delays in network deployments
- The requirement to regularly review and modify the long-term network technology and architecture strategy

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Pilot Project – Goals and Results

- Preliminary designs for N+2 architecture access network per Mediacom's design rules and equipment specifications
- Optimal locations of new nodes to minimize node count
- Fully calculated, technically valid RF plant design
- Optimal routing of new fiber cable as required to connect new nodes to the existing fiber plant
- Integration with Mediacom's existing GIS/network engineering platform
- Increased effectiveness and productivity of Mediacom's existing network planning team
- Savings of time and cost relative to manual planning and design methods

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Designs, not Models, are the Whole Company in a Bag

Models typically consist of

- manually produced preliminary designs and cost estimates for a handful of nodes
- spreadsheets of extrapolations of those cost estimates across a larger footprint
- additional cost allowance (e.g. 20%) to ensure that final cost estimate is not too low

ADO produces preliminary designs, complete with

- fully detailed bills-of-materials for all equipment and cable
- details of all construction activities (replace, remove, turn around, etc.)
- Cost estimates for all equipment, cable, and construction activities per Mediacom's standard costing figures

With all that ADO delivers – for every node in the network – Mediacom gets the Whole Company in a Bag

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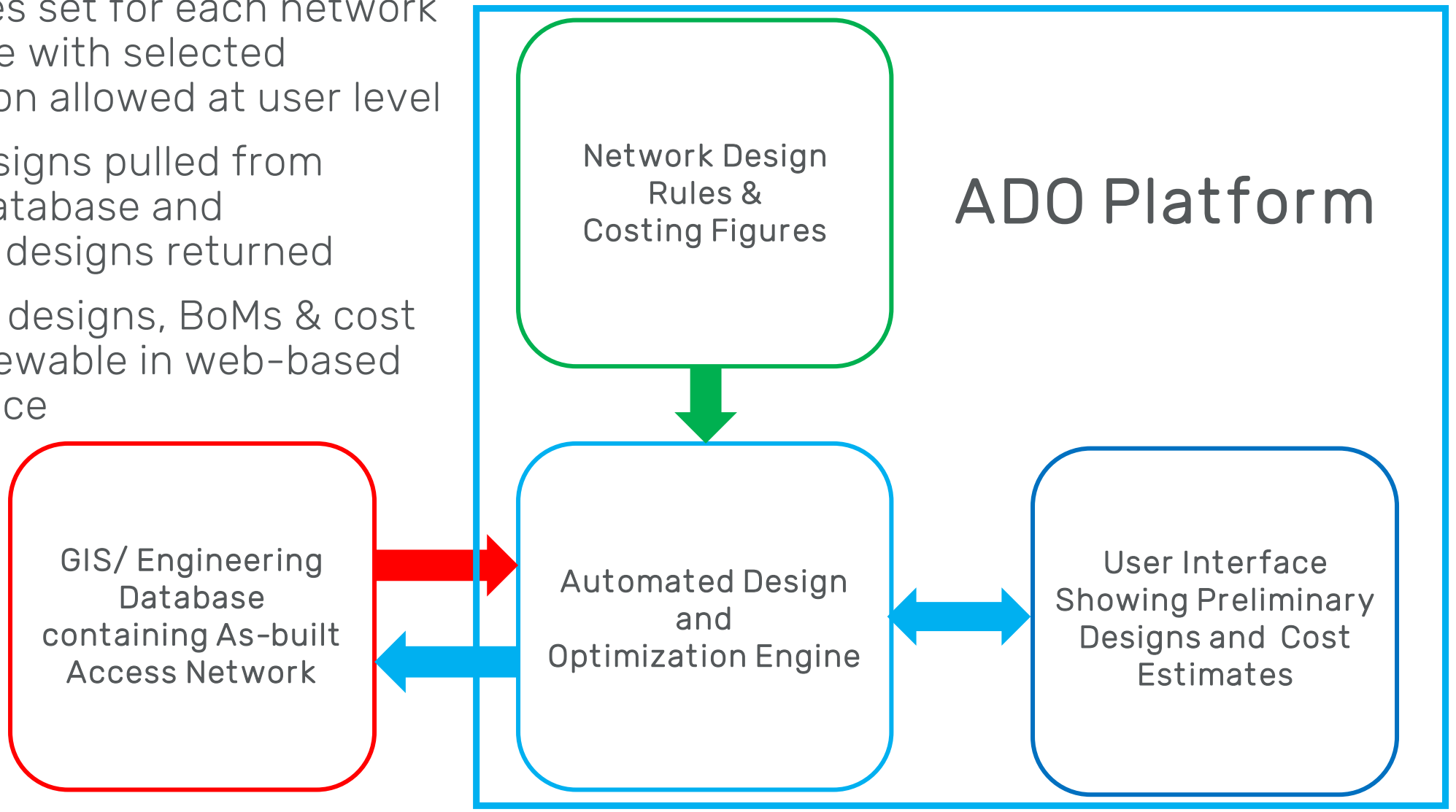
ADO ENVIRONMENT OVERVIEW

- Design Rules set for each network architecture with selected configuration allowed at user level
- As-built designs pulled from GIS/Eng. Database and preliminary designs returned
- Preliminary designs, BoMs & cost estimate viewable in web-based user interface



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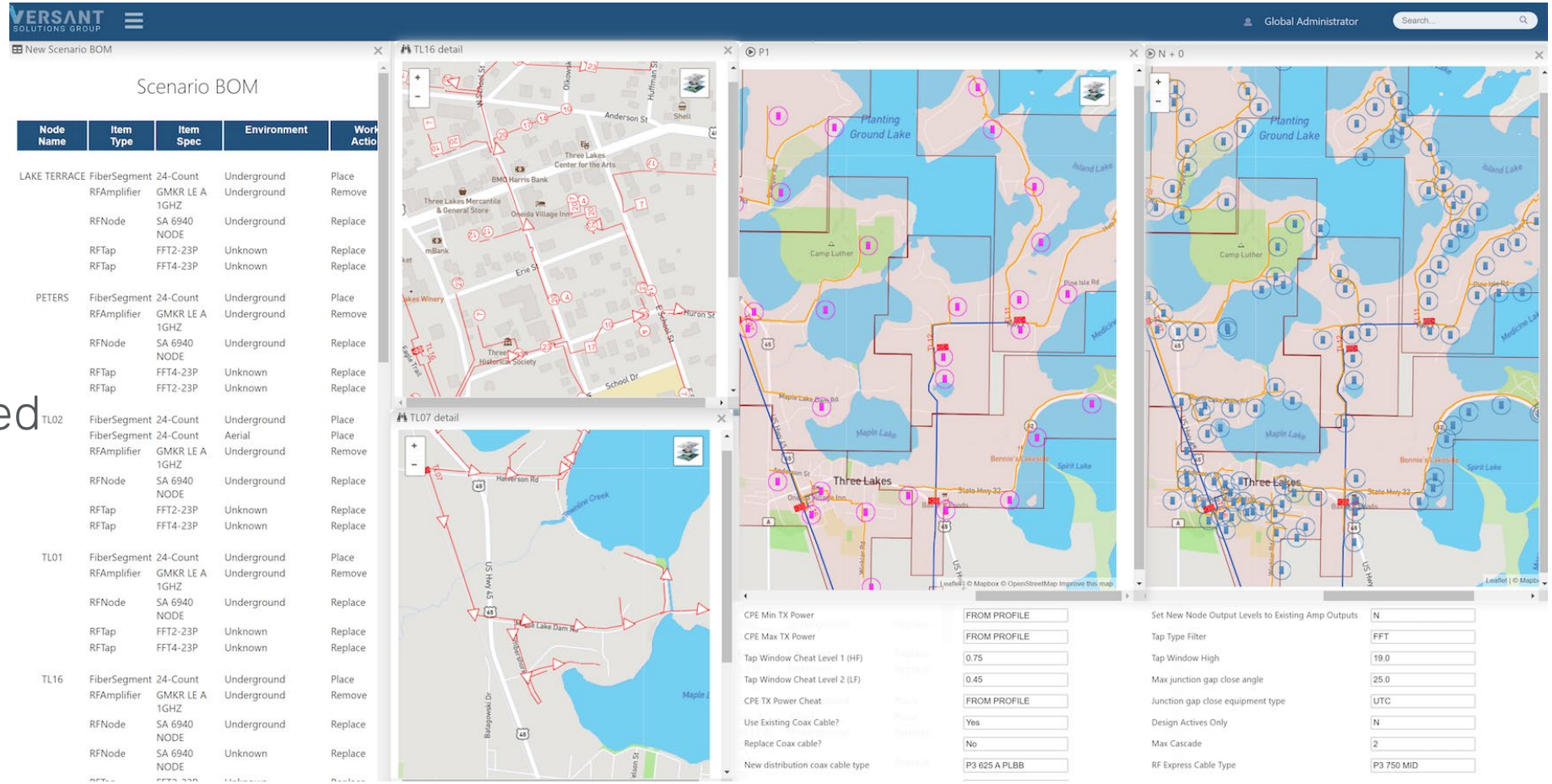
Map View

- N+X preliminary designs
- X = zero or greater
- Design Rules preset at corporate level with some user configuration allowed
- Map view is geo-registered to land-base
- Satellite and street views provided



Node Name	Item Type	Item Spec	Environment	Work Actio
LAKE TERRACE	FiberSegment	24-Count	Underground	Place
	RFAmplifier	GMKR LE A 1GHZ	Underground	Remove
	RFNode	SA 6940 NODE	Underground	Replace
	RFTap	FFT2-23P	Unknown	Replace
	RFTap	FFT4-23P	Unknown	Replace
PETERS	FiberSegment	24-Count	Underground	Place
	RFAmplifier	GMKR LE A 1GHZ	Underground	Remove
	RFNode	SA 6940 NODE	Underground	Replace
	RFTap	FFT4-23P	Unknown	Replace
	RFTap	FFT2-23P	Unknown	Replace
TL02	FiberSegment	24-Count	Underground	Place
	FiberSegment	24-Count	Aerial	Place
	RFAmplifier	GMKR LE A 1GHZ	Underground	Remove
	RFNode	SA 6940 NODE	Underground	Replace
	RFTap	FFT2-23P	Unknown	Replace
	RFTap	FFT4-23P	Unknown	Replace
TL01	FiberSegment	24-Count	Underground	Place
	RFAmplifier	GMKR LE A 1GHZ	Underground	Remove
	RFNode	SA 6940 NODE	Underground	Replace
	RFTap	FFT2-23P	Unknown	Replace
	RFTap	FFT4-23P	Unknown	Replace
TL16	FiberSegment	24-Count	Underground	Place
	RFAmplifier	GMKR LE A 1GHZ	Underground	Remove
	RFNode	SA 6940 NODE	Underground	Replace
	RFNode	SA 6940 NODE	Unknown	Replace

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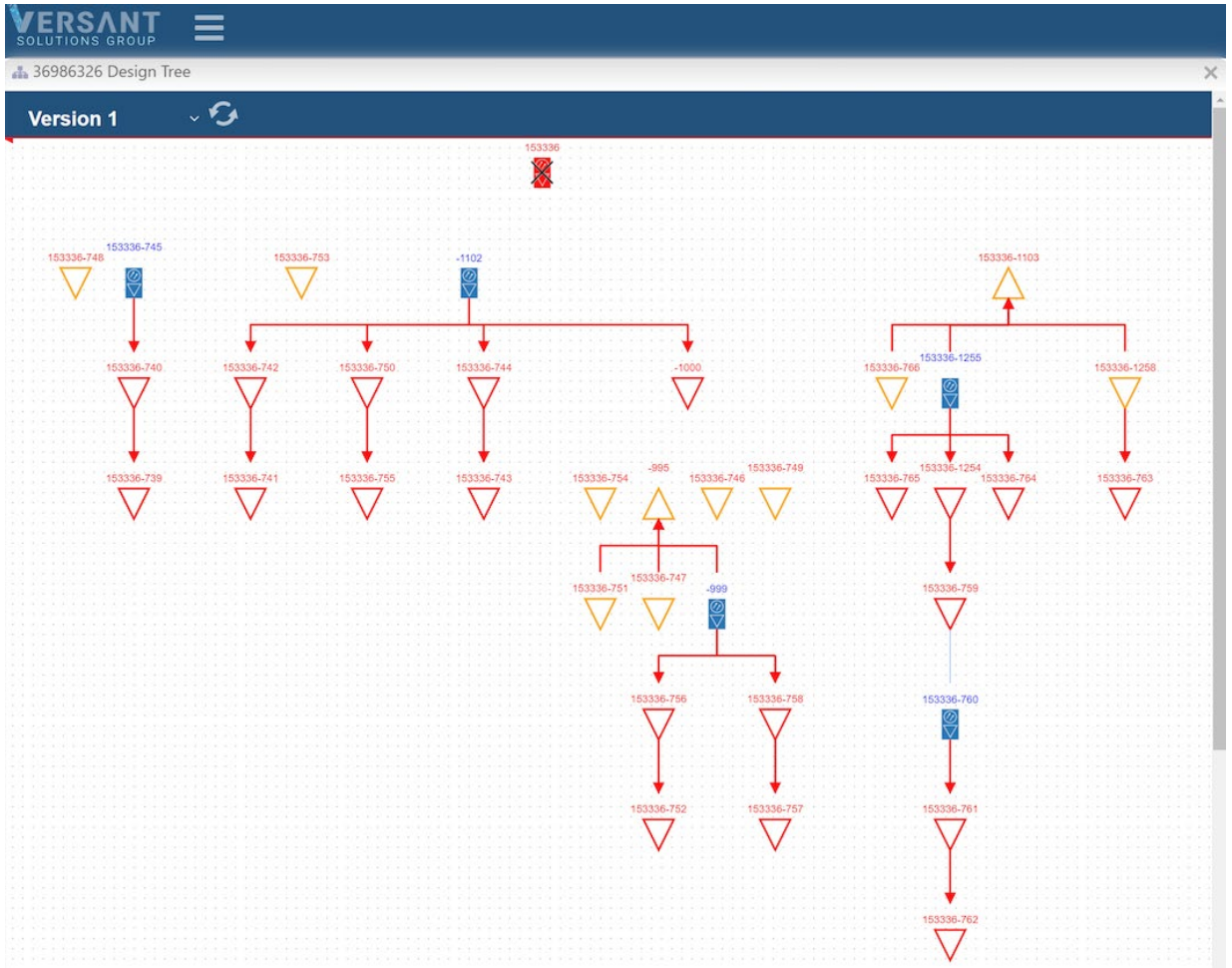
Schematic View

- Supports rapid analysis of network design for each selected architecture
- Configurable to give different users the information they need
- Shows changes made to as-built design to achieve new architecture



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Bills of Materials and Cost Estimates

- Fully detailed down to individual node
- Can be rolled up to Hub, Headend, Region, and Whole Company levels
- Every item of equipment and every work action is counted and costed
- Corporate costing figures utilized for consistency

Existing Node	Designed Sub Node	Service Locations Passed						Optical Path Length	Coax Cable							
Design Profile: Mediacom 750 S-A 5 TL02	Existing	Port	SDU	MDU	COM	OTHER	TOTAL	980	Type/Placement		Qty					
		A	98	0	21	0	119		P3-500	AR	721					
		B	87	0	11	0	98			UG	967					
		C	44	0	0	0	44		P3-625	AR	3,178					
		D	102	0	9	0	111			UG	1,198					
									P3-500	AR	721					
										UG	967					
									Total	AR	4,620					
										UG	3,132					
		Node Total	331	0	41	0	372		AR+UG Total							7,752
	Designed (node 1 of 4) Mediacom 1000 GI TL02-01	Port	SDU	MDU	COM	OTHER	TOTAL	1121	Type/Placement		Action	Qty	Cost			
		A	25	0	5	0	30						Labor	Matrl.	Total	
		B	22	0	3	0	25		P3-500	AR	Remove	721	112	7543	7,655	
		C	11	0	0	0	11			UG	Remove	967	150	10117	10,267	
		D	26	0	2	0	28		P3-625	AR	Place	3,178	494	33248	33,741	
										UG	Place	1,198	186	12533	12,719	
									P3-500	AR	Place	721	112	7543	7,655	
										UG	Place	967	150	10117	10,267	
									Total	AR	Place	3899	606	40791	41,396	
										UG	Place	2165	336	22650	22,986	
		Node Total	83	0	10	0	93		AR+UG Total			12,128	$ 1,884	$ 63,441	$ 65,325	
	Designed (node 2 of 4) Mediacom 1000 GI TL02-02	Port	SDU	MDU	COM	OTHER	TOTAL		Type/Placement		Action	Qty	Cost			
		A	25	0	5	0	30						Labor	Matrl.	Total	
		B	22	0	3	0	25		P3-500	AR	Remove	144	112	7543	7,655	
		C	11	0	0	0	11			UG	Remove	2,053	1595	10267	11,862	
		D	26	0	2	0	28		P3-625	AR	Place	189	147	945	1,092	
										UG	Place	1,413	1098	7066	8,164	
									P3-500	AR	Place	1,343	1043	6715	7,758	

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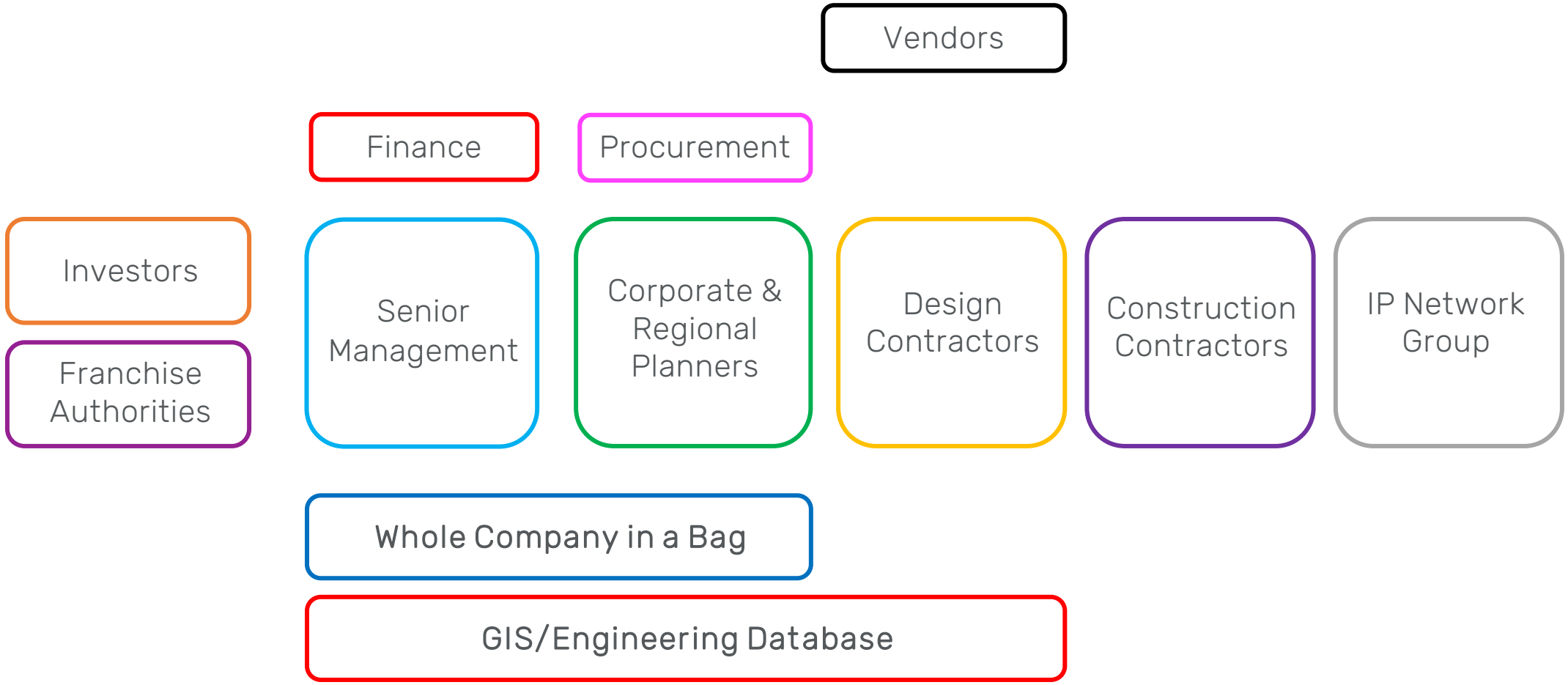
All the Players



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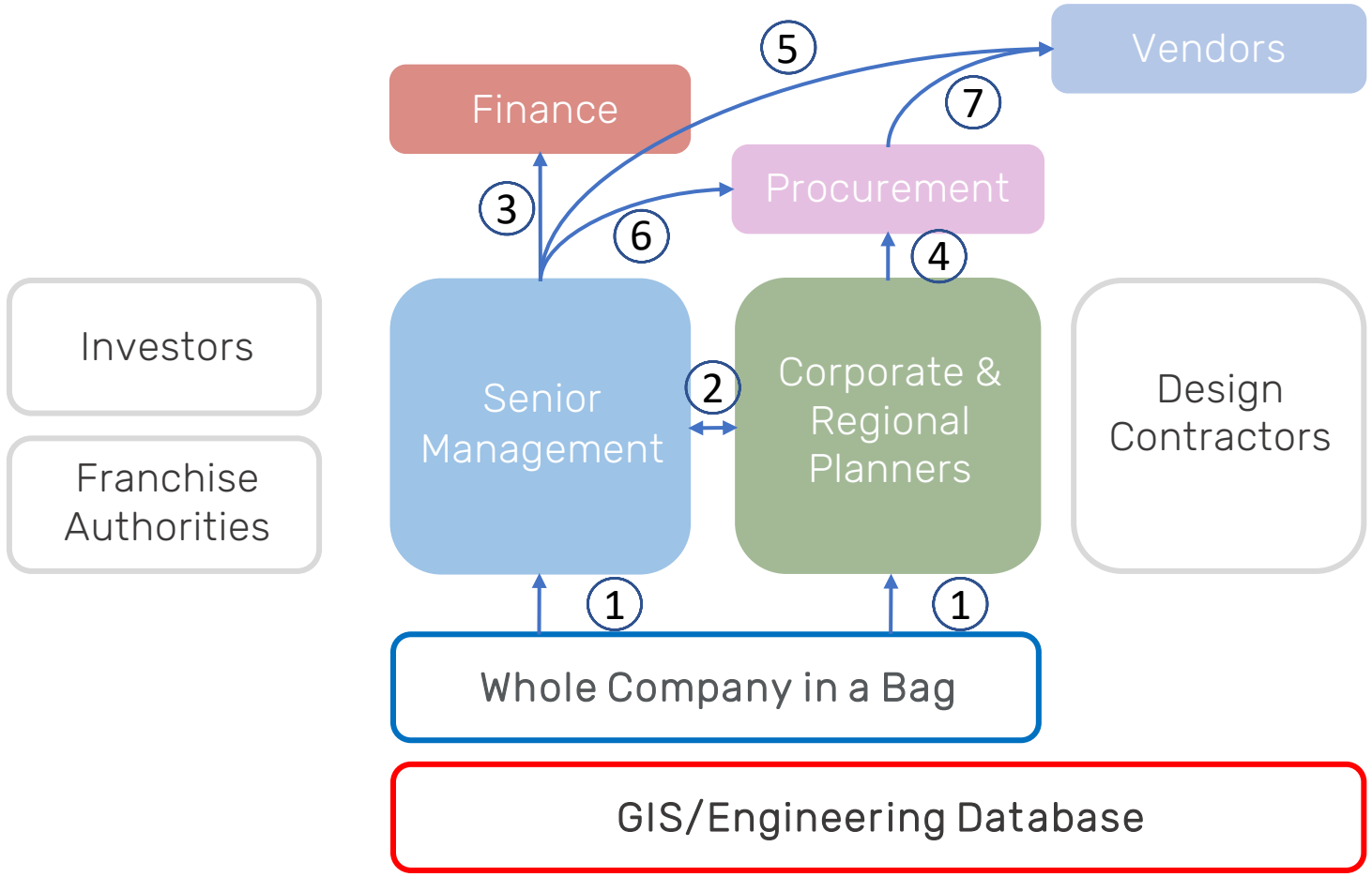
Network Planning and Approval



1. Preliminary Designs, BoMs, Costing
2. Recommendations for Upgrades
3. Budget Planning and Approval
4. Equipment and Material Forecasts
5. Negotiation with Vendors
6. Procurement Planning and Approval
7. Orders and Delivery Requirements

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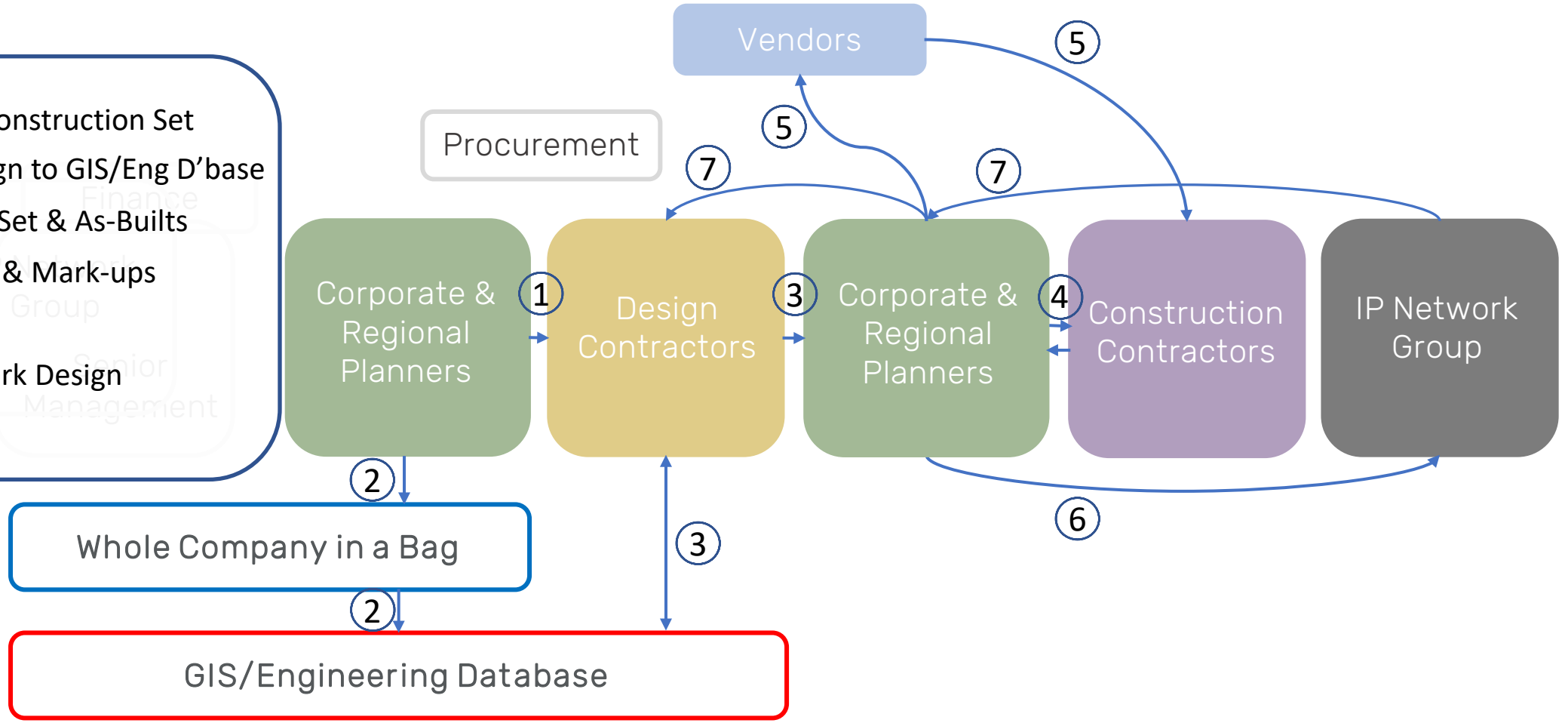
Network Upgrade Implementation

1. Direction to do Construction Set
2. Push Prelim Design to GIS/Eng D'base
3. Do Construction Set & As-Builts
4. Construction Set & Mark-ups
5. Delivery Dates
6. Upgraded Network Design
7. As-built Details



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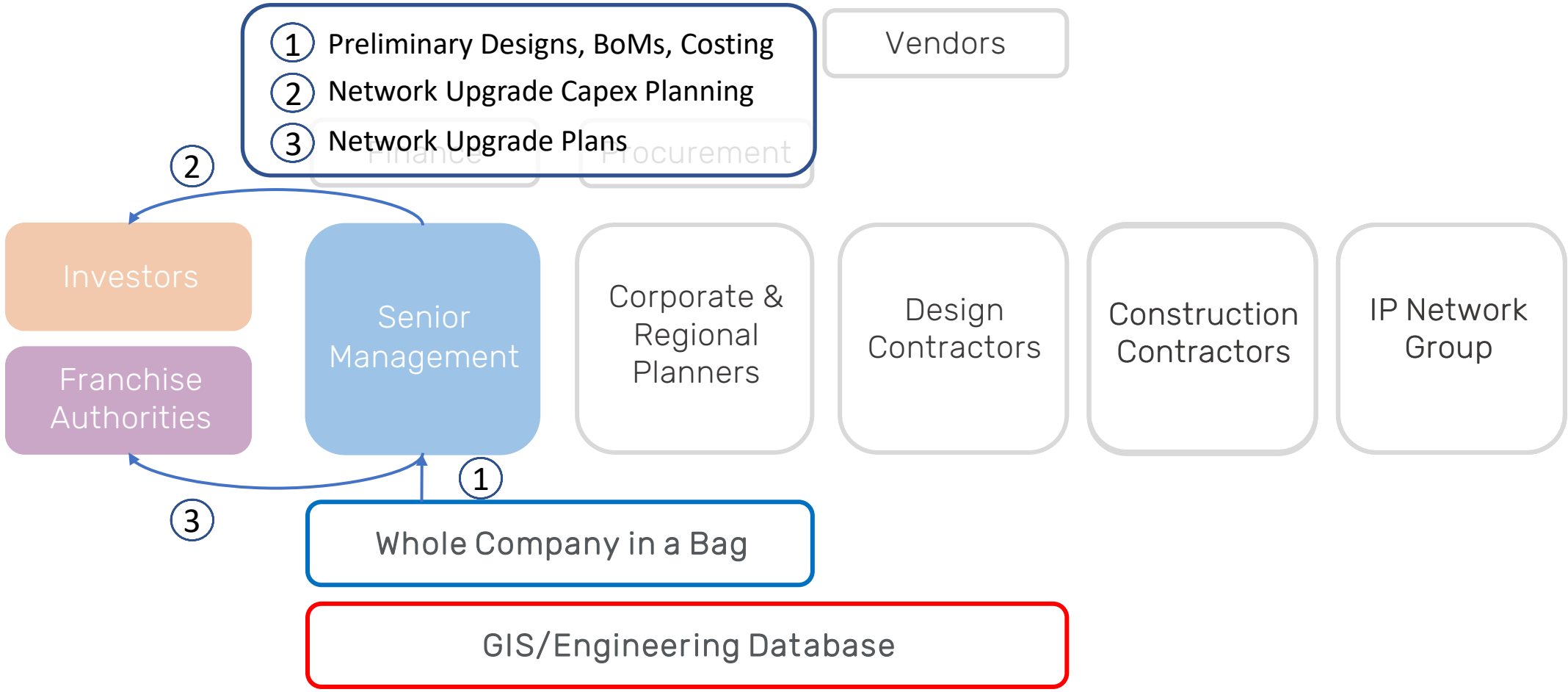
External Communications



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Benefits and Improvements

- ADO technology enables faster and more comprehensive evaluation of the technical and capital costs characteristics of access network designs
- ADO technology – specifically, the data within the preliminary designs and cost estimates it produces so rapidly – has conferred benefits on practically every group within Mediacom involved in the funding, design, construction, and operation of the access network
- The increase in confidence gained by having easy access to preliminary designs and cost estimates for multiple network architectures has allowed Mediacom to execute its access network upgrade strategy significantly more efficiently and effectively
- The ability to work with external groups – investors, franchise authorities, and vendors – has also been enhanced by clearly and consistently providing each of those groups with information they need to best understand and support Mediacom's access network upgrade strategy

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Further Opportunities

- As Mediacom gains more experience with ADO technology, it is anticipating opportunities for
  - Automation of the design of
    - power distribution for HFC networks
    - the fiber optic portion of HFC networks
    - greenfield FTTH networks
  - Making the ADO platform – and access network design data therein – increasingly available to everybody in the company who cares about the access network

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Thank You!

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