C H O R U S

CHORUS OPEN ACCESS DEEDS OF UNDERTAKING

KEY PERFORMANCE INDICATORS REPORTING

FEBRUARY 2019

1

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OVERVIEW OF THE REPORT

Chorus is committed to being an open access wholesaler. This includes a commitment to provide products on a non-discriminatory or equivalence of inputs (EOI) basis.

This report presents Key Performance Indicators (KPI) to demonstrate Chorus' compliance with its non-discrimination and EOI commitments for the provisioning and restoration of Chorus products. This report is provided in accordance with clauses 14.5 of our Fibre and Copper Open Access Deeds of Undertakings and clause 14.6 of our UFB2 Deed of Undertaking Commitments ("the Deeds")

This is the 28th KPI report to be published by Chorus.

The KPI report is one part of our wider compliance programme, which includes quarterly surveys of our customers and service level reporting. Service level reports can be found here:

https://company.chorus.co.nz/our-network/about-our-network/networkreporting/key-performance-indicators

Chorus meets with the Commission every quarter to discuss Chorus' compliance with the Deeds.

Report Results

For the measurements and products included in this report, the measurements indicate that Chorus is meeting its EOI and non-discrimination commitments.

While there are minor variations between customers for some products and for some metrics, these variations are within the normal range for these metrics and do not give rise to EOI or non-discrimination issues. The reasons for these variations are explained in the Results Overview section.

This report cannot be directly compared to Chorus' operational reports.

Report Period

This report covers three reporting periods:

- 1 May 2018 to 31 July 2018 (Quarter 3)
- 1-Aug 2018 to 31 October 2018 (Quarter 4)
- 1 November 2018 to 31 January 2019 (Quarter 1)

Measures

There have been no changes to the way we have approached the KPI report for this quarter. This means that for this quarter, for products which have met the volume threshold, we have reported the following non-discrimination and EOI measures:

Provisioning Metrics	Met Commit Rate	Did Chorus install the service when we said we would (reported as %).
	Right First Time	Were there any faults with the service within 7 calendar days of it being provisioned (reported as %).
	Time to Complete	From the time we received the order, how long did it take us to give service (reported as working hours, 9 hours per day)
Restoration Metrics	Met Commit Rate	Did we repair the service when we said we would (reported as %).
	Repeat Fault Rate	Were there any subsequent faults raised within 7 days (calendar days excluding national holidays) of the fault being restored (reported as %).
	Time to Complete	From the time we received the problem ticket, how long did it take for us to restore service (reported as working hours, 12 hours per day)

Volume Threshold

We have reported on products which meet the following volume threshold for each metric:

- At least two customers ordered the product (or had product faults); and
- A minimum of five orders per customer are ordered for the quarter (or a minimum of five product faults were raised per customer for the quarter).

A product will need to meet this threshold for all of the reporting months in order to be presented. Some products may meet the volume threshold for some measurements and not others.

Selection of Customer Data

For each measurement, we have reported on the top five customers by volume (either in terms of orders or faults) where the volume threshold has been met for three consecutive reporting periods.

This data is presented on an anonymous basis. The anonymous label given to a particular customer will vary between different metrics (i.e. "Customer A" will not always be the same customer).

This quarterly KPI report includes the top five by volume at quarter ending 31st January 2019. This means that top five customers in this report, and the order in which they are shown, may differ from all three reporting periods contained in the November 2018 report.

For provisioning measures, the data will be added to the quarter in which service was given. There are instances where the service is provided before the 'service given date' in our provisioning systems. Where this occurs, the service given date is updated manually and can result in changes to data from previous quarters. For restoration measures, the data will be added to the quarter in which the order was closed.

Results Overview

For the measurements and products included in this report, the measurements indicate that Chorus is meeting its EOI and non-discrimination commitments.

This report does show minor variations between customers for some products and for some metrics. We think that these variations are within the normal range for these metrics and do not give rise to EOI or non-discrimination issues.

Throughout the report, we include specific commentary where the variation may be meaningful. However, there are also some general reasons why there may be natural variations between customers month-on month. We explain these below.

Provisioning

There are a number of factors that may impact provisioning measurements and lead to variations between customers. These include:

- Volume impact on systems: bulk orders placed in significant volumes can cause Chorus' systems to slow down and can require manual intervention. While orders are still dealt with on a "first in first out basis", the slowing 1 of the systems and the manual intervention could impact both the customer who has placed the bulk order and other customers placing an order around the same time;
- Volume impact of service Company: if Chorus receives a bulk order that has not been forecast, this can mean that the work schedule is full to capacity. If this happens, any delay due to a technician managing a complex order can have a flow on impact for subsequent orders. This can have some impact on orders placed by other customers in the same time period;
- Chorus team factors: fluctuations in the availability of trained team members (e.g. due to unplanned events or sickness) can result in some orders having different completion times, depending on the number of orders placed. Team resource is however planned to meet committed provisioning timeframes;
- **Geographic**: if a customer does a promotion in a particular geographic area, this may mean that their order volumes can be concentrated in that particular region. These volumes and

the Chorus team factors can result in minor differences in time to serve. In addition there may be fewer technicians available in rural areas as opposed to urban ones, which may affect the Time to Complete metric in some areas; and

• **Customer factors**: there are a number of factors that fall outside Chorus' control. For example, a transfer that involves number portability can delay Chorus' ability to complete the order if the porting does not happen within expected timeframes. Errors in order entry can also impact Chorus' delivery.

Restoration

There are a number of factors that may impact restoration measurements and lead to variations between customers. These include:

- Weather events: weather events can increase fault volumes and impact Chorus' ability to fix faults. For example, heavy rain limits Chorus' ability to open the network without damaging the copper;
- Chorus team factors; Chorus uses a number of service Company. Service Company have different processes and operating models which can cause variations in fault restoration. While this does not impact service Company meeting the committed restoration targets, it can result in slightly different timeframes. Therefore if one customer has faults more in one particular region than another, this can result in minor variations in the restoration timeframes ; and;
- **Customer factors:** there are a number of factors that fall outside Chorus' control. This can include customer diagnosis of faults not always being correct. Often fault restoration can require a customer's faults personnel to complete work, and timeframes can be subject to their availability.

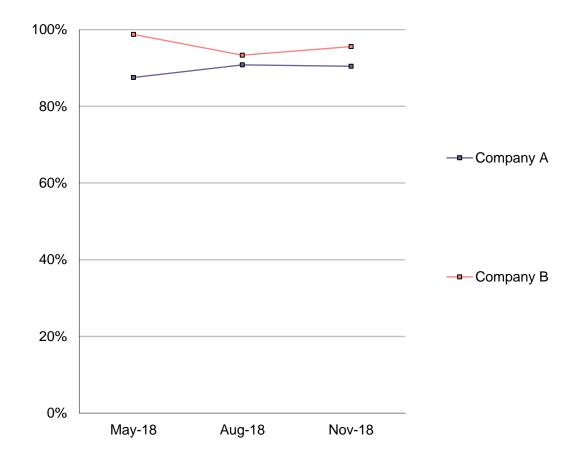
Chorus continues to have a large programme of work underway to continually improve our restoration performance. This includes initiatives targeting reducing Repeat Fault Rates, a nationwide reactive maintenance programme, and ongoing customer training for fault diagnosis and management.

EQUIVALENCE OF INPUTS REPORTING

BASEBAND COPPER - PROVISIONING METRICS

Met Commit Rate

Met Commit	May-18	Aug-18	Nov-18
Company A	88%	91%	90%
Company B	99%	93%	96%

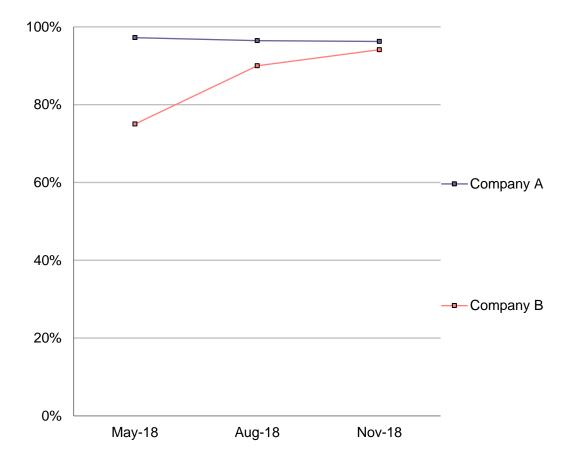


Results for Company A were mostly affected by Customer reschedules and internal processing errors.

BASEBAND COPPER - PROVISIONING METRICS

Right First Time

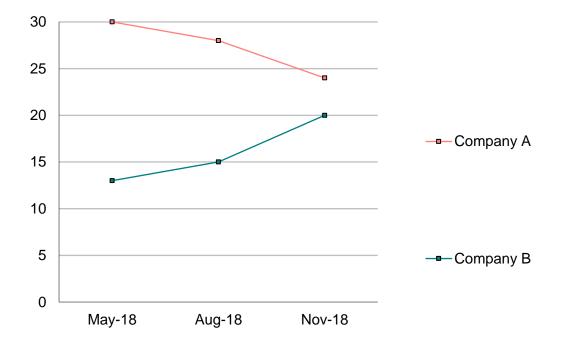
Right First Time	May-18	Aug-18	Nov-18
Company A	97%	96%	96%
Company B	75%	90%	94%



BASEBAND COPPER - PROVISIONING METRICS

Time to Complete

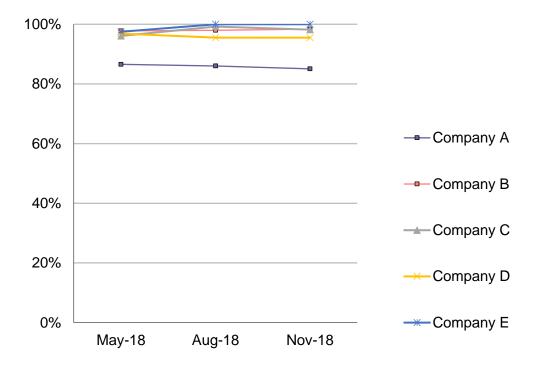
Time to Complete	May-18	Aug-18	Nov-18
Company A	30	28	24
Company B	13	15	20



BASEBAND COPPER WITH UBA - PROVISIONING METRICS

Met Commit Rate

Met Commit	May-18	Aug-18	Nov-18
Company A	87%	86%	85%
Company B	98%	98%	98%
Company C	96%	99%	98%
Company D	97%	96%	96%
Company E	98%	100%	100%

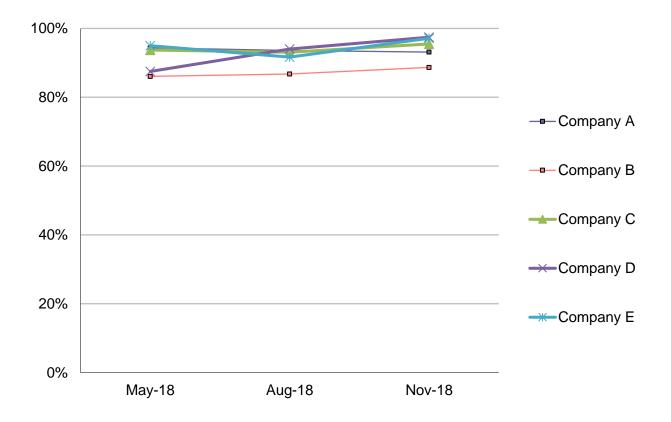


Results for Company A were affected by their customer ordering behaviour and process delays.

BASEBAND COPPER WITH UBA – PROVISIONING METRICS

Right First Time

Right First Time	May-18	Aug-18	Nov-18
Company A	94%	94%	93%
Company B	86%	87%	89%
Company C	94%	93%	95%
Company D	88%	94%	97%
Company E	95%	92%	97%

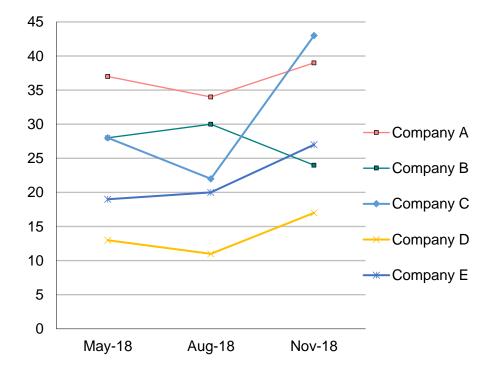


Results for Company B were mostly affected by separate network faults and customer troubleshooting behaviour.

BASEBAND COPPER WITH UBA - PROVISIONING METRICS

Time to Complete

Time to Complete	May-18	Aug-18	Nov-18
Company A	37	34	39
Company B	28	30	24
Company C	28	22	43
Company D	13	11	17
Company E	19	20	27

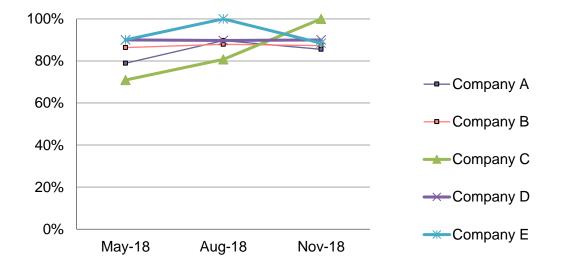


Results for Companys A and C are affected by their ordering behaviour.

BASEBAND IP - PROVISIONING METRICS

Met Commit Rate

Met Commit	May-18	Aug-18	Nov-18
Company A	79%	90%	86%
Company B	86%	88%	87%
Company C	71%	81%	100%
Company D	80%	90%	95%
Company E	100%	90%	96%

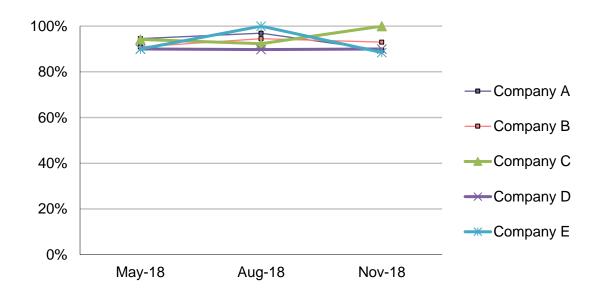


Results for Company A and B were affected by processing delays.

BASEBAND IP - PROVISIONING METRICS

Right First Time

Right First Time	May-18	Aug-18	Nov-18
Company A	94%	97%	89%
Company B	91%	95%	93%
Company C	94%	92%	100%
Company D	90%	90%	90%
Company E	90%	100%	88%

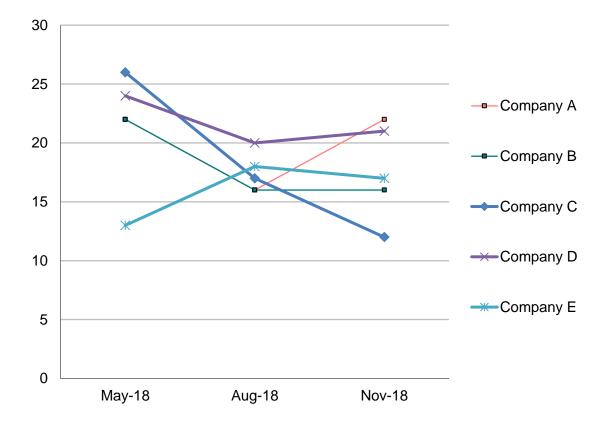


Results for Company A, B, D and E were affected by separate network faults and customer troubleshooting practices.

BASEBAND IP - PROVISIONING METRICS

Time to Complete

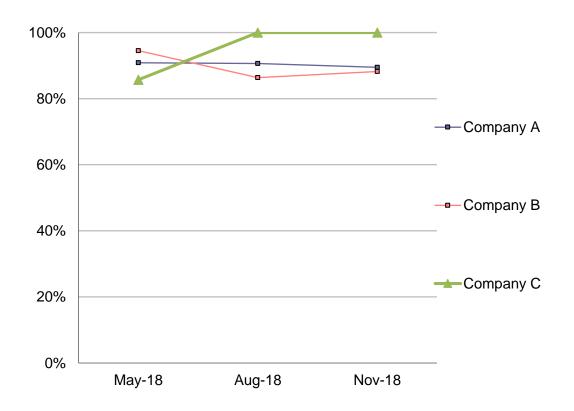
Time to Complete	May-18	Aug-18	Nov-18
Company A	22	16	22
Company B	22	16	16
Company C	26	17	12
Company D	24	20	21
Company E	13	18	17



UCLL - PROVISIONING METRICS

Met Commit Rate

Met Commit	May-18	Aug-18	Nov-18
Company A	91%	91%	89%
Company B	95%	86%	88%
Company C	86%	100%	100%

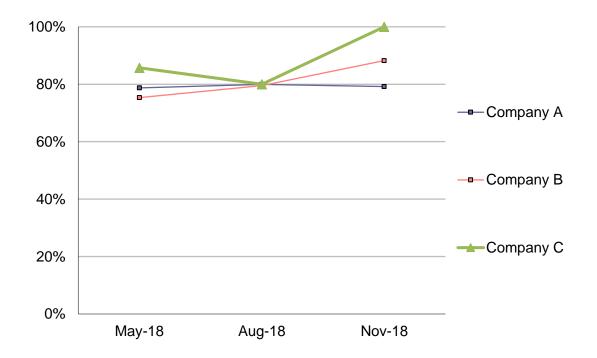


Results for Company A and B were mostly due to separate network faults and processing delays.

UCLL - PROVISIONING METRICS

Right First Time

Right First Time	May-18	Aug-18	Nov-18
Company A	79%	80%	79%
Company B	75%	80%	88%
Company C	86%	80%	100%

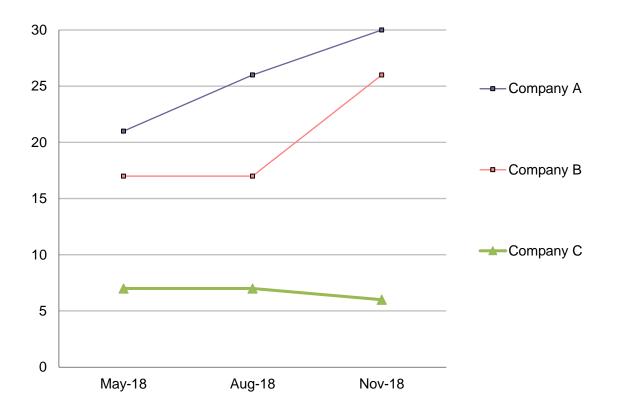


Results for Company A and B were affected by customer ordering behaviour and customer trouble shooting.

UCLL - PROVISIONING METRICS

Time to Complete

Time to Complete	May-18	Aug-18	Nov-18
Company A	21	26	30
Company B	17	17	26
Company C	7	7	6



Results for Company A and B were affected by Chorus processing error and RSP ordering behaviour.

SLU - PROVISIONING METRICS

Met Commit Rate

This metric did not meet the inclusion threshold.

SLU - PROVISIONING METRICS

Right First Time

This metric did not meet the inclusion threshold.

SLU - PROVISIONING METRICS

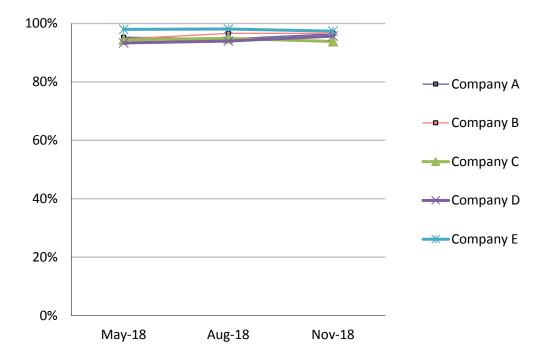
Time to Complete

This metric did not meet the inclusion threshold.

UBA WITH AGENCY VOICE - PROVISIONING METRICS

Met Commit Rate

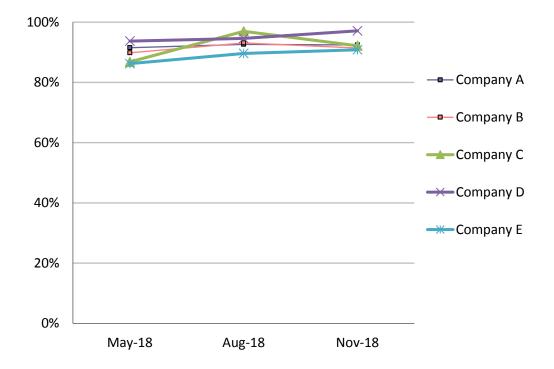
Met Commit	May-18	Aug-18	Nov-18
Company A	95%	95%	96%
Company B	95%	97%	97%
Company C	94%	95%	94%
Company D	93%	94%	96%
Company E	98%	98%	97%



UBA WITH AGENCY VOICE PROVISIONING METRICS

Right First Time

Right First Time	May-18	Aug-18	Nov-18
Company A	92%	93%	92%
Company B	90%	93%	91%
Company C	87%	97%	92%
Company D	94%	95%	97%
Company E	86%	90%	91%

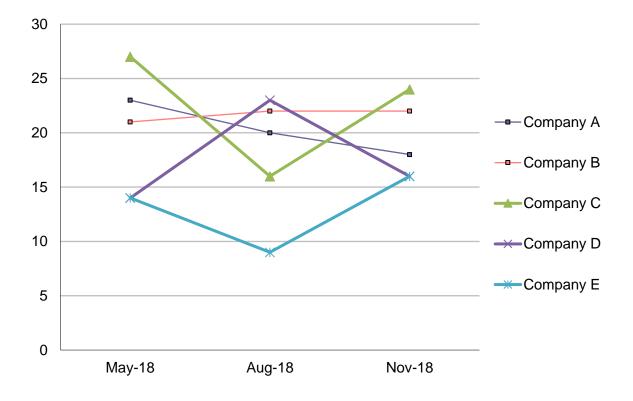


Results for Company B and E were mostly due to separate network faults and customer hardware issues.

UBA WITH AGENCY VOICE PROVISIONING METRICS

Time to Complete

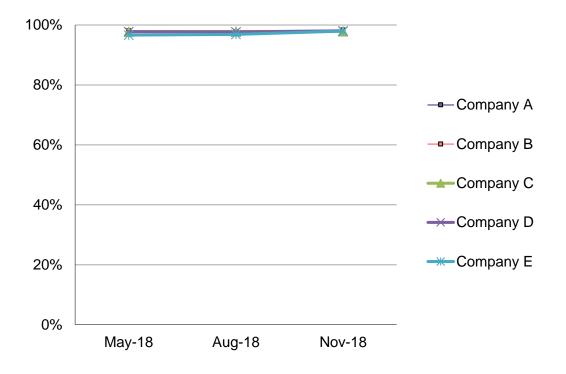
Time to Complete	May-18	Aug-18	Nov-18
Company A	23	20	18
Company B	21	22	22
Company C	27	16	24
Company D	14	23	16
Company E	14	9	16



UBA ONLY (NAKED) - PROVISIONING METRICS

Met Commit Rate

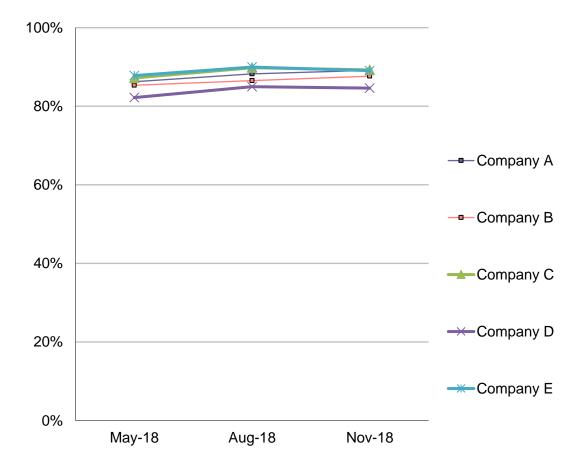
Met Commit	May-18	Aug-18	Nov-18
Company A	98%	98%	98%
Company B	98%	98%	98%
Company C	98%	98%	98%
Company D	98%	98%	98%
Company E	97%	97%	98%



UBA ONLY (NAKED) - PROVISIONING METRICS

Right First Time

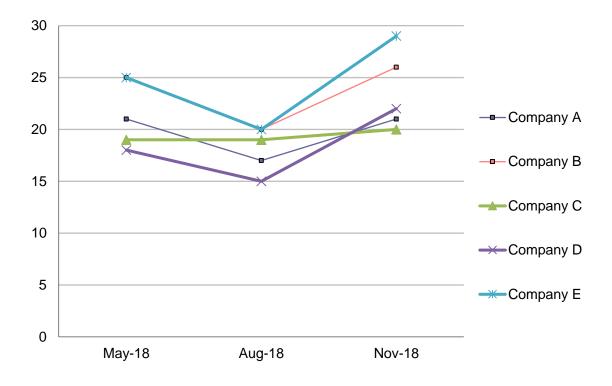
Right First Time	May-18	Aug-18	Nov-18
Company A	86%	88%	89%
Company B	85%	87%	88%
Company C	87%	90%	89%
Company D	82%	85%	85%
Company E	88%	90%	89%



UBA ONLY (NAKED) - PROVISIONING METRICS

Time to Complete

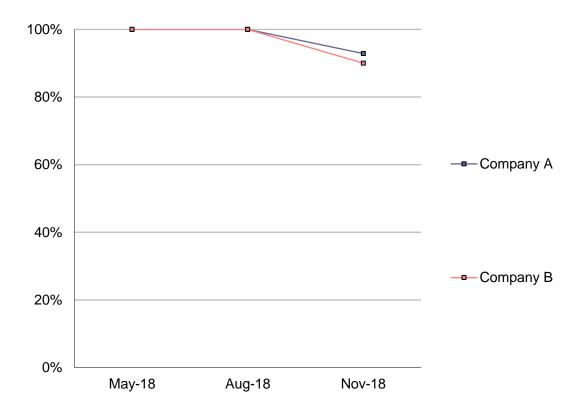
Time to Complete	May- 18	Aug-18	Nov-18
Company A	21	17	21
Company B	25	20	26
Company C	19	19	20
Company D	18	15	22
Company E	25	20	29



HSNS LITE (OVER COPPER) - PROVISIONING METRICS

Met Commit Rate

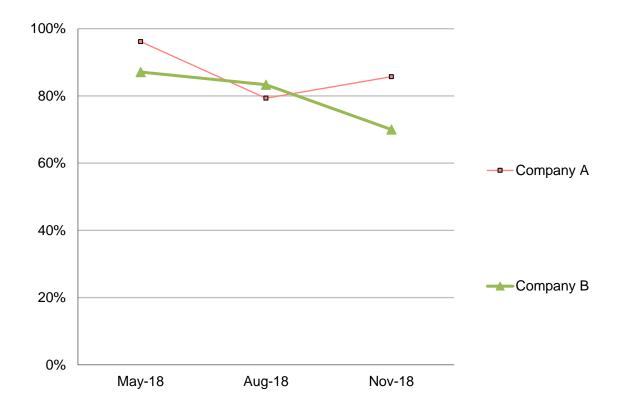
Met Commit	May-18	Aug-18	Nov-18
Company A	100%	100%	93%
Company B	100%	100%	90%



HSNS Lite (OVER COPPER) - PROVISIONING METRICS

Right First Time

Right First Time	May- 18	Aug-18	Nov-18
Company A	96%	79%	86%
Company B	87%	83%	70%

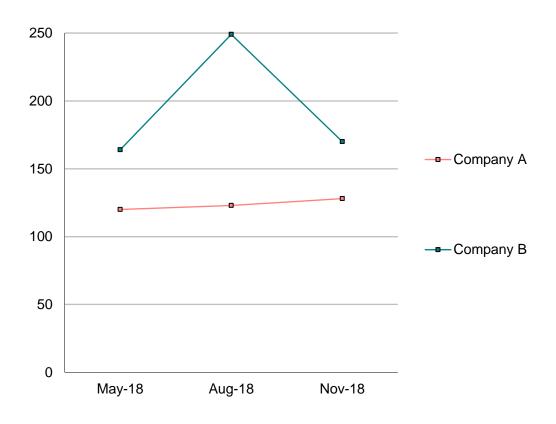


Company B's results were affected by customer ordering behaviour.

HSNS Lite (OVER COPPER) - PROVISIONING METRICS

Time to Complete

Time to Complete	May-18	Aug-18	Nov-18
Company A	120	123	128
Company B	164	249	170

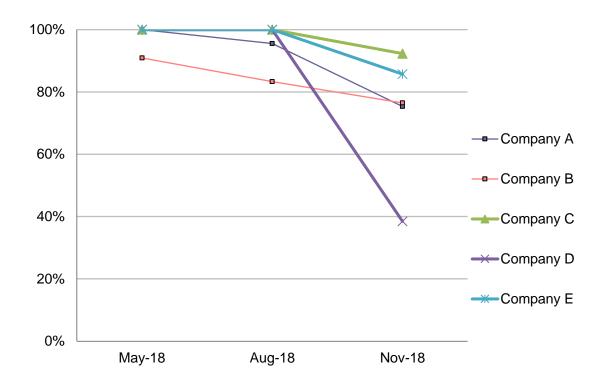


Company B's results were affected by site readiness issues resulting in customer reschedules.

DFAS - PROVISIONING METRICS

Met Commit Rate

Met Commit	May-18	Aug-18	Nov-18
Company A	100%	96%	75%
Company B	91%	83%	76%
Company C	100%	100%	92%
Company D	100%	100%	38%
Company E	100%	100%	86%

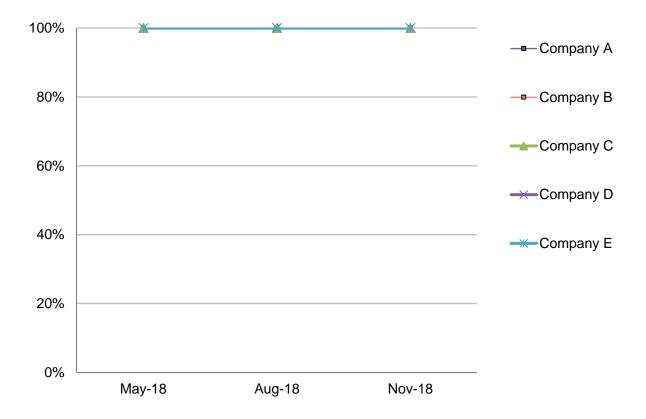


Results for this metric are affected by technician and system processing delays. Customer D was also affected by order complexity and customer ordering behaviour.

DFAS - PROVISIONING METRICS

Right First Time

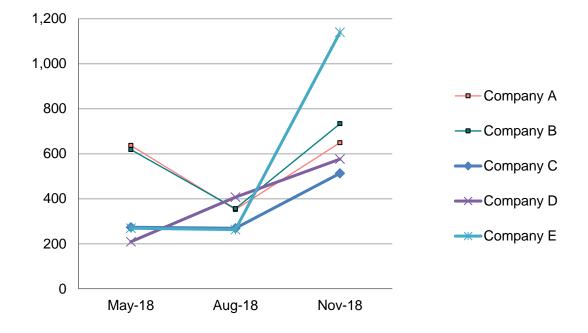
Right First Time	May-18	Aug-18	Nov-18
Company A	100%	100%	100%
Company B	100%	100%	100%
Company C	100%	100%	100%
Company D	100%	100%	100%
Company E	100%	100%	100%



DFAS - PROVISIONING METRICS

Time to Complete

Time to Complete	May-18	Aug-18	Nov-18
Company A	637	352	649
Company B	618	356	733
Company C	273	269	513
Company D	209	407	576
Company E	269	263	1139

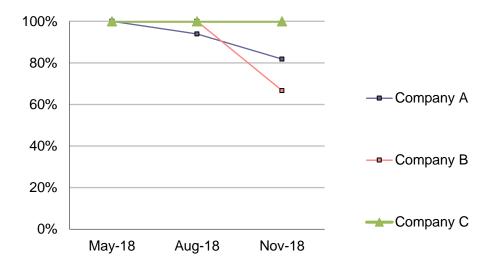


Results for Company A,B and D were mostly affected by site readiness issues. Company E was affected by additional network build requirements.

ICAB - PROVISIONING METRICS

Met Commit Rate

Met Commit	May-18	Aug-18	Nov-18
Company A	100%	94%	82%
Company B	100%	100%	67%
Company C	100%	100%	100%



Results for Company A and B were affected by system processing delays.

ICAB - PROVISIONING METRICS

Right First Time

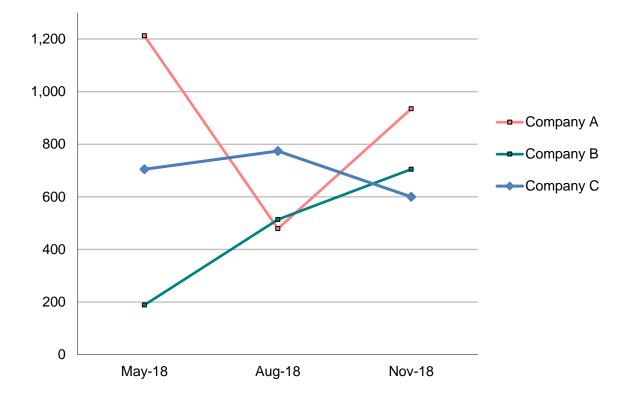
Right First Time	May-18	Aug-18	Nov-18
Company A	100%	100%	100%
Company B	100%	100%	100%
Company C	100%	100%	100%



ICAB - PROVISIONING METRICS

Time to Complete

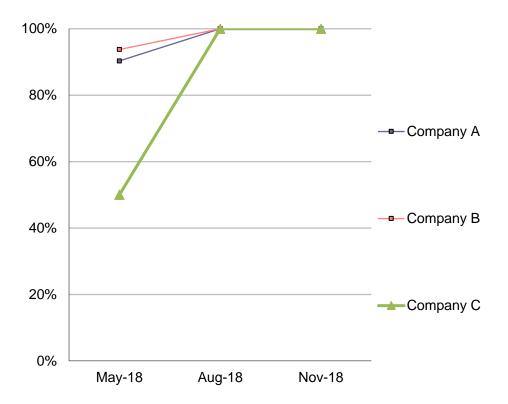
Time to Complete	May-18	Aug-18	Nov-18
Company A	1212	479	935
Company B	189	514	705
Company C	705	774	600



Results for Company A and B were due to customer reschedules for civil build approvals.

HSNS PREMIUM - PROVISIONING METRICS

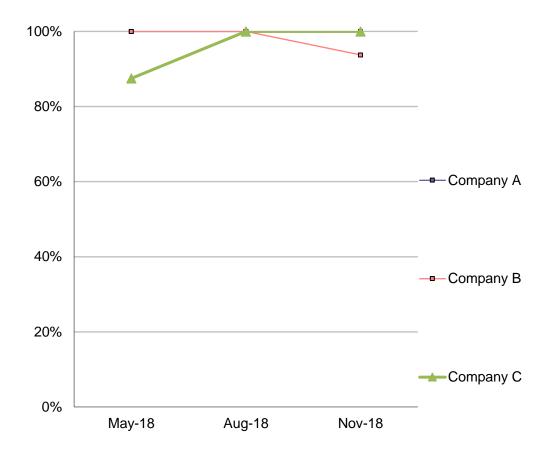
Met Commit	May-18	Aug-18	Nov-18
Company A	90%	100%	100%
Company B	94%	100%	100%
Company C	50%	100%	100%



HSNS PREMIUM - PROVISIONING METRICS

Right First Time

Right First Time	May-18	Aug-18	Nov-18
Company A	100%	100%	100%
Company B	100%	100%	94%
Company C	88%	100%	100%

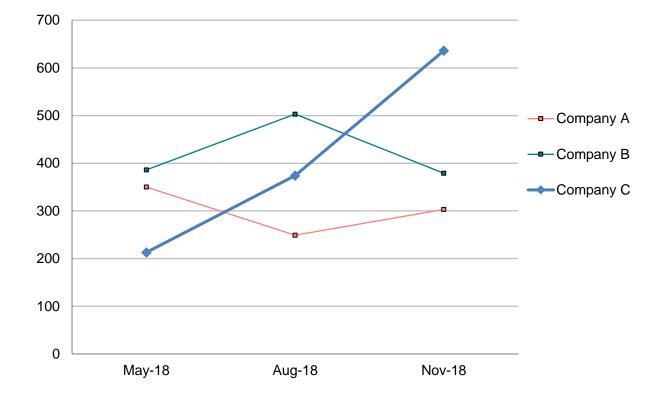


Results for Company B were affected by technician processing delays.

HSNS PREMIUM - PROVISIONING METRICS

Time to Complete

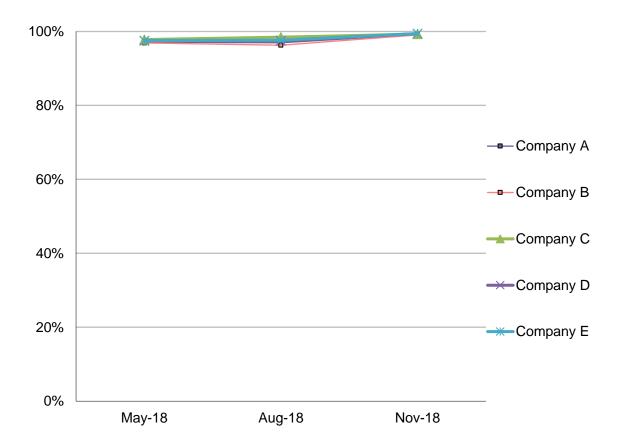
Time to Complete	May-18	Aug-18	Nov-18
Company A	350	249	303
Company B	386	503	379
Company C	213	374	636



Results for Company B were affected by customer reschedules and site readiness isues. Company C's result was affected by Chorus internal processing.

NGA BITSTREAM 2 - PROVISIONING METRICS

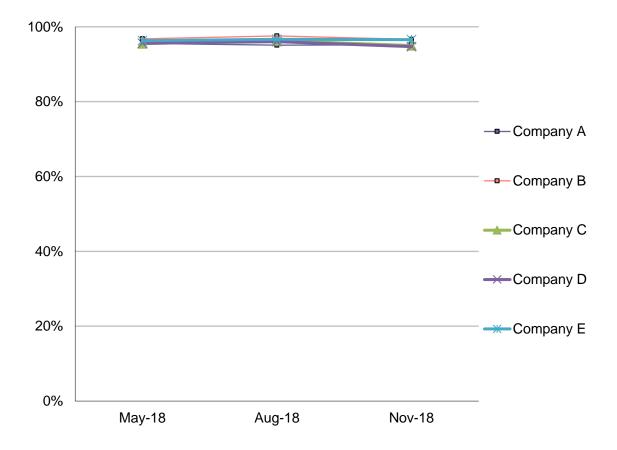
Met Commit	May-18	Aug-18	Nov-18
Company A	97%	97%	99%
Company B	97%	96%	99%
Company C	98%	98%	99%
Company D	97%	97%	99%
Company E	98%	98%	99%



NGA BITSTREAM 2 - PROVISIONING METRICS

Right First Time

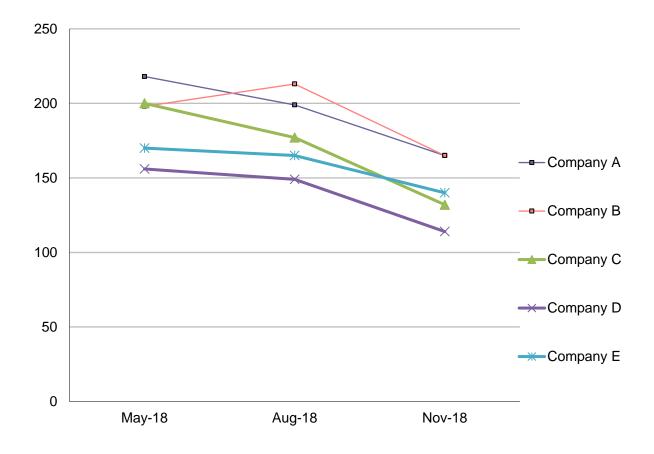
Right First Time	May-18	Aug-18	Nov-18
Company A	96%	95%	95%
Company B	97%	98%	97%
Company C	95%	96%	95%
Company D	96%	96%	95%
Company E	96%	97%	97%



NGA BITSTREAM 2 - PROVISIONING METRICS

Time to Complete

Time to Complete	May-18	Aug-18	Nov-18
Company A	218	199	165
Company B	198	213	165
Company C	200	177	132
Company D	156	149	114
Company E	170	165	140

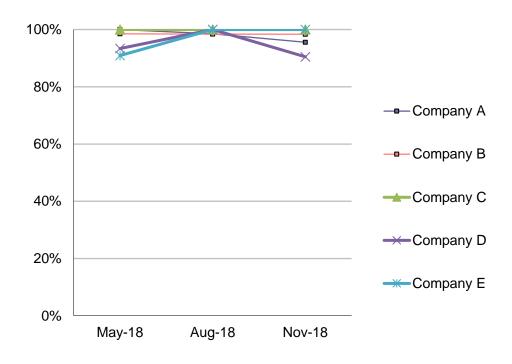


Results for Company A, B, C and E were affected by customer rescheduling.

NGA BITSTREAM 3 - PROVISIONING METRICS

Met Commit Rate

Met Commit	May-18	Aug-18	Nov-18
Company A	100%	99%	96%
Company B	99%	98%	98%
Company C	100%	100%	100%
Company D	93%	100%	90%
Company E	91%	100%	100%

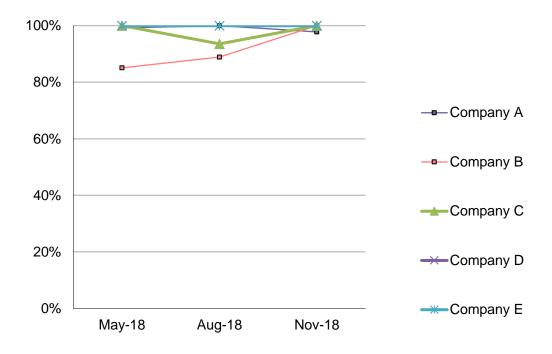


Results for Company D were impacted by a system fault which delayed order completion.

NGA BITSTREAM 3 - PROVISIONING METRICS

Right First Time

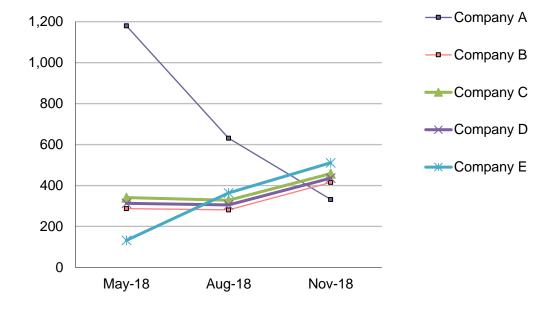
Right First Time	May-18	Aug-18	Nov-18
Company A	99%	100%	98%
Company B	85%	89%	100%
Company C	100%	94%	100%
Company D	100%	100%	100%
Company E	100%	100%	100%



NGA BITSTREAM 3 - PROVISIONING METRICS

Time to Complete

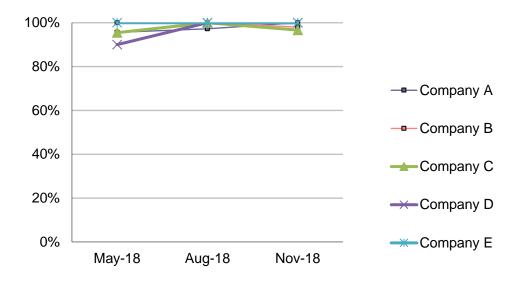
Time to Complete	May-18	Aug-18	Nov-18
Company A	1180	631	332
Company B	287	281	415
Company C	341	328	458
Company D	313	305	436
Company E	132	364	511



Results for this metric are mostly affected by civil builds and consent requirement issues.

NGA BITSTREAM 3A - PROVISIONING METRICS

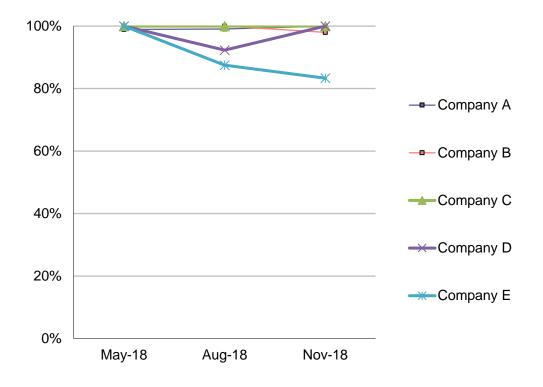
Met Commit	May-18	Aug-18	Nov-18
Company A	96%	97%	100%
Company B	100%	100%	98%
Company C	95%	100%	97%
Company D	90%	100%	100%
Company E	100%	100%	100%



NGA BITSTREAM 3A - PROVISIONING METRICS

Right First Time

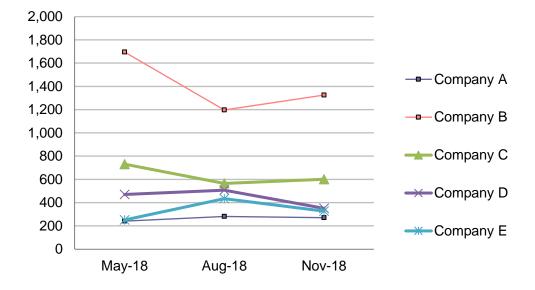
Right First Time	May-18	Aug-18	Nov-18
Company A	99%	99%	100%
Company B	100%	100%	98%
Company C	100%	100%	100%
Company D	100%	92%	100%
Company E	100%	88%	83%



Results for Company E were predominantly affected by complex faults.

Time to Complete

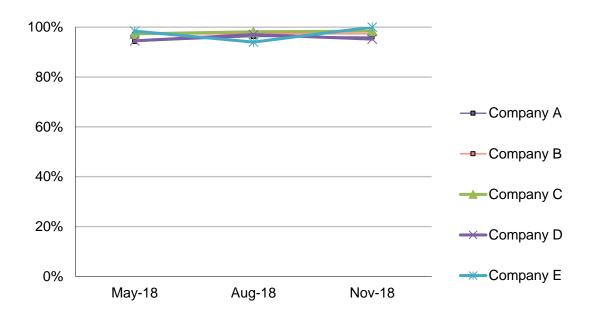
Time to Complete	May-18	Aug-18	Nov-18
Company A	241	281	270
Company B	1695	1197	1325
Company C	731	565	601
Company D	470	507	351
Company E	251	434	327



Results for Company B was affected by civil build requirements. Company C and D were predominantly affected by order complexity and communal consenting issues. Company E was affected by customer availability.

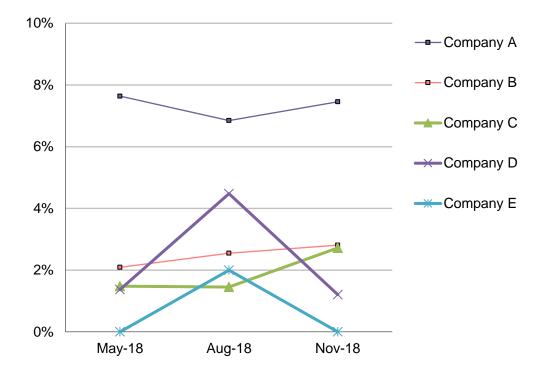
BASEBAND COPPER - RESTORATION METRICS

Met Commit	May-18	Aug-18	Nov-18
Company A	94%	96%	96%
Company B	97%	97%	97%
Company C	97%	98%	98%
Company D	95%	97%	95%
Company E	98%	94%	100%



Repeat Fault Rate

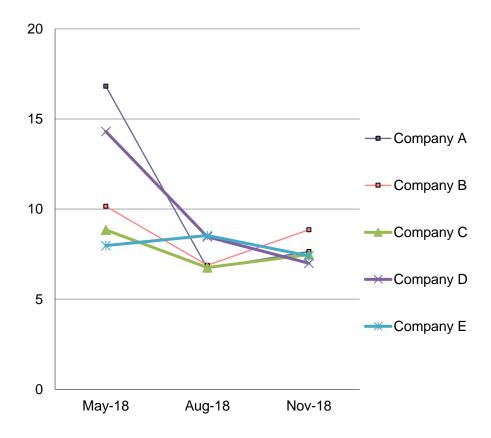
Repeat Fault	May-18	Aug-18	Nov-18
Company A	8%	7%	7%
Company B	2%	3%	3%
Company C	1%	1%	3%
Company D	1%	4%	1%
Company E	0%	2%	0%



Results for Company A were affected by customer ordering behaviour.

BASEBAND COPPER - RESTORATION METRICS

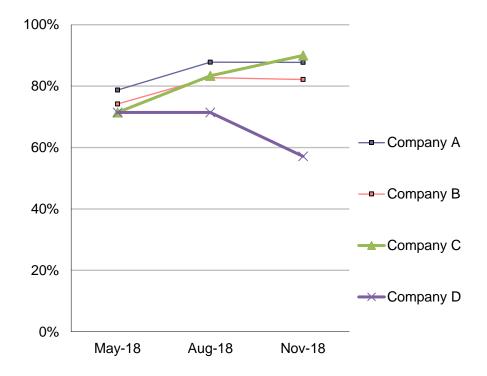
Time to Complete	May-18	Aug-18	Nov-18
Company A	17	7	8
Company B	10	7	9
Company C	9	7	7
Company D	14	8	7
Company E	8	9	7



HSNS LITE - RESTORATION METRICS

Met Commit Rate

Met Commit	May-18	Aug-18	Nov-18
Company A	79%	88%	88%
Company B	74%	83%	82%
Company C	71%	83%	90%
Company D	71%	71%	57%

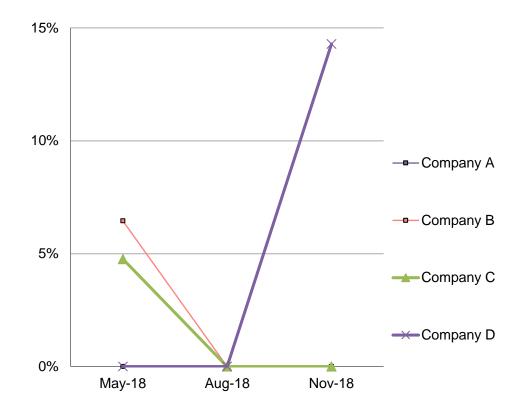


Results for Company B were affected by customer rescheduling, site readiness, and civil work requirements.

Company D was mostly affected by separate complex faults.

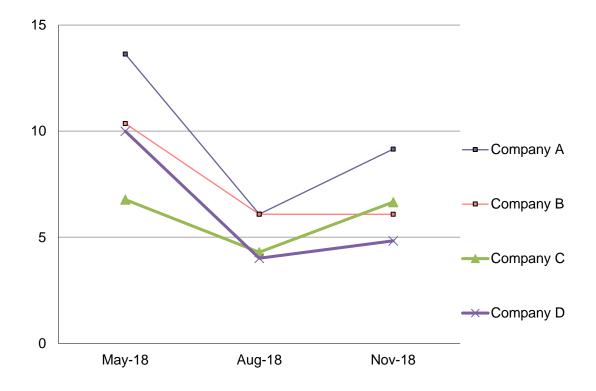
Repeat Fault Rate

Repeat Fault	May-18	Aug-18	Nov-18
Company A	0%	0%	0%
Company B	6%	0%	0%
Company C	5%	0%	0%
Company D	0%	0%	14%



Results for Company D were affected by customer troubleshooting.

Time to Complete	May-18	Aug-18	Nov-18
Company A	14	6	9
Company B	10	6	6
Company C	7	4	7
Company D	10	4	5

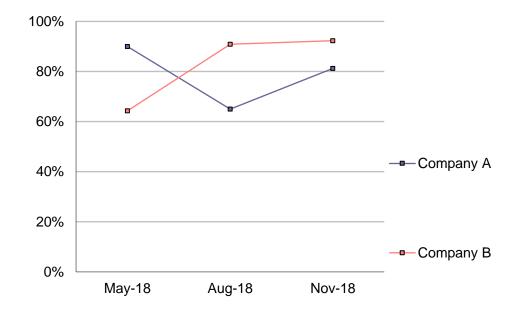


HSNS PREMIUM - RESTORATION METRICS

Met Commit Rate

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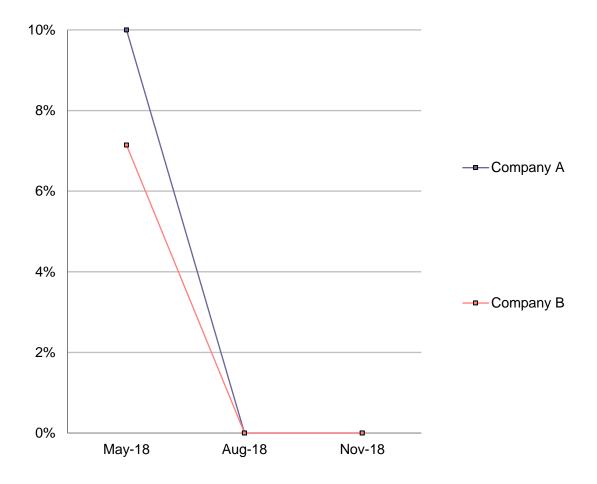
Met Commit	May-18	Aug-18	Nov-18
Company A	90%	65%	81%
Company B	64%	91%	92%



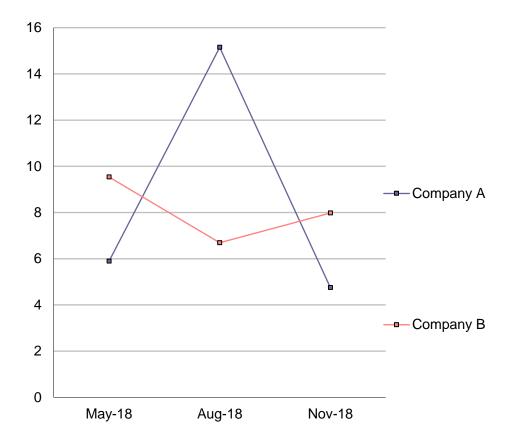
Results for Company A were affected by customer rescheduling and civil work required.

Repeat Fault Rate

Repeat Fault	May-18	Aug-18	Nov-18
Geni	10%	0%	0%
Company B	7%	0%	0%

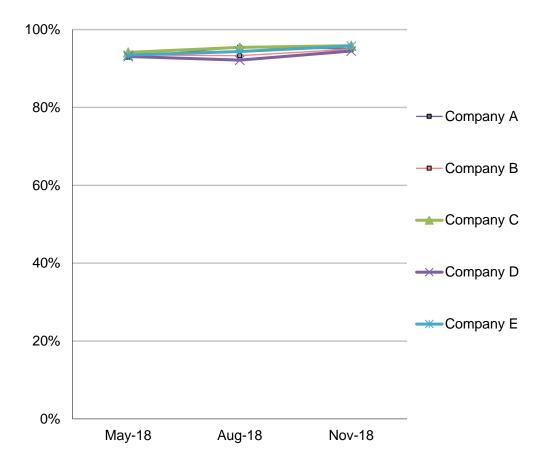


Time to Complete	May-18	Aug-18	Nov-18
Company A	6	15	5
Company B	10	7	8



NGA- RESTORATION METRICS

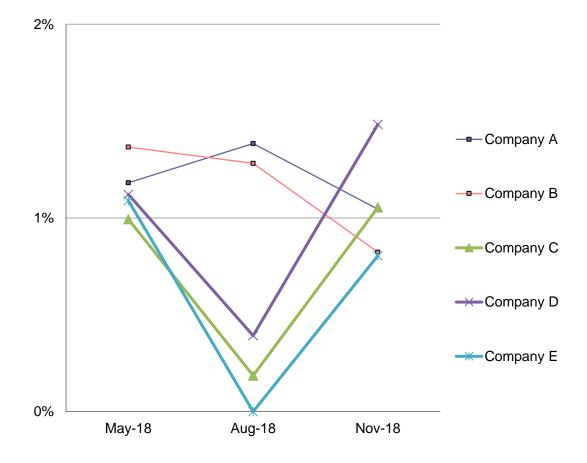
Met Commit	May-18	Aug-18	Nov-18
Company A	93%	95%	95%
Company B	94%	93%	95%
Company C	94%	95%	96%
Company D	93%	92%	94%
Company E	93%	94%	96%



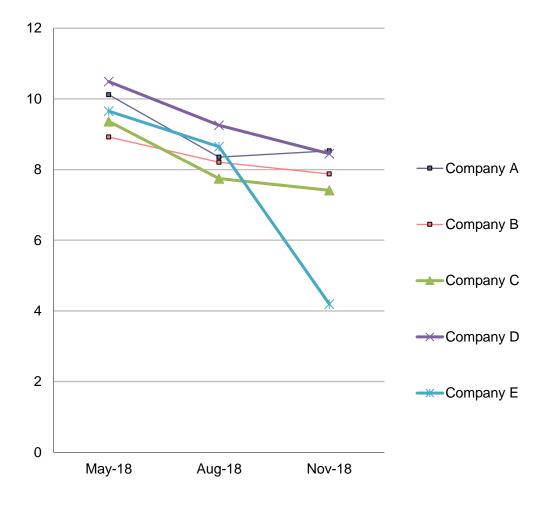
NGA- RESTORATION METRICS

Repeat Fault Rate

Repeat Fault	May-18	Aug-18	Nov-18
Company A	1%	1%	1%
Company B	1%	1%	1%
Company C	1%	0%	1%
Company D	1%	0%	1%
Company E	1%	0%	1%



Time to Complete	May-18	Aug-18	Nov-18
Company A	10	8	9
Company B	9	8	8
Company C	9	8	7
Company D	10	9	8
Company E	10	9	4

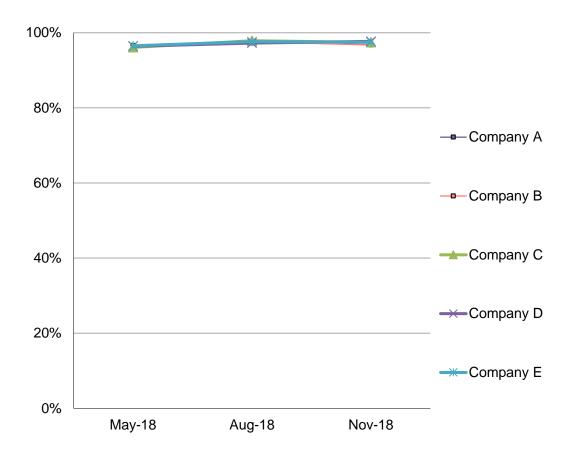


UBA - RESTORATION METRICS

Both UBA only (naked) and UBA with POTS (clothed) faults are presented in these metrics.

Met Commit Rate

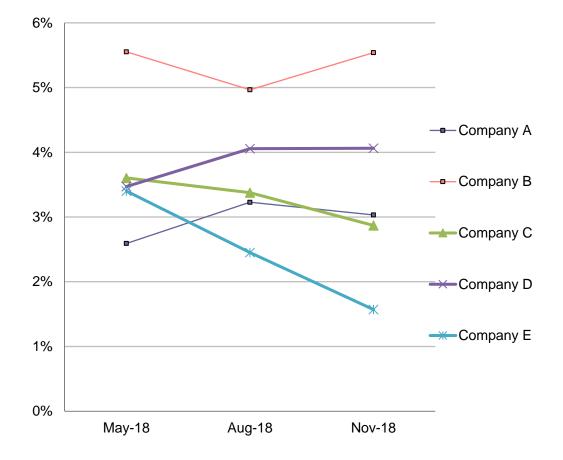
Met Commit	May-18	Aug-18	Nov-18
Company A	97%	98%	97%
Company B	97%	98%	97%
Company C	96%	98%	97%
Company D	96%	97%	98%
Company E	97%	98%	97%



UBA - RESTORATION METRICS

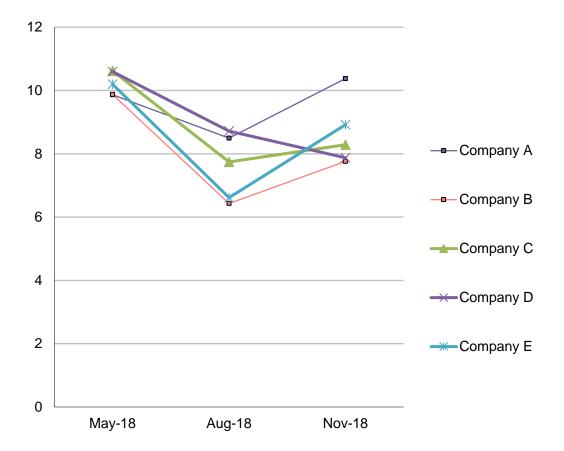
Repeat Fault Rate

Repeat Fault	May-18	Aug-18	Nov-18
Company A	3%	3%	3%
Company B	6%	5%	6%
Company C	4%	3%	3%
Company D	3%	4%	4%
Company E	3%	2%	2%



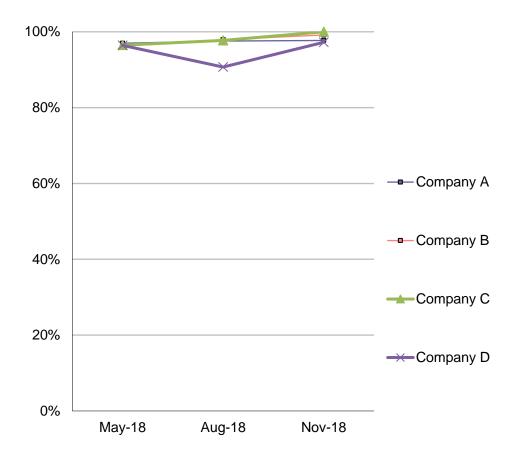
UBA - RESTORATION METRICS

Time to Complete	May-18	Aug-18	Nov-18
Company A	10	8	10
Company B	10	6	8
Company C	11	8	8
Company D	11	9	8
Company E	10	7	9



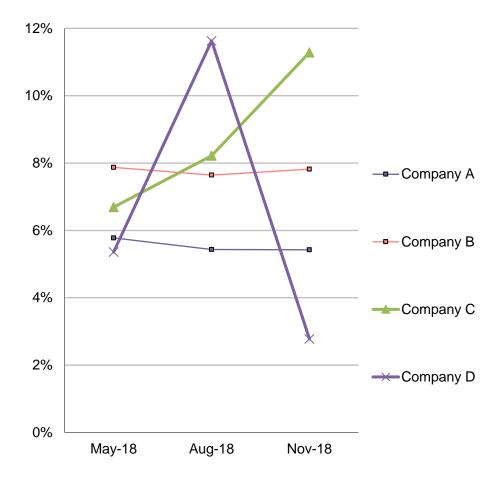
UCLL - RESTORATION METRICS METRICS

Met Commit	May-18	Aug-18	Nov-18
Company A	97%	98%	98%
Company B	96%	98%	99%
Company C	96%	98%	100%
Company D	96%	91%	97%



Repeat Fault Rate

Repeat Fault	May-18	Aug-18	Nov-18
Company A	6%	5%	5%
Company B	8%	8%	8%
Company C	7%	8%	11%
Company D	5%	12%	3%



Results for Company B and C were affected by their troubleshooting practices and ordering behaviour.

Time to Complete	May-18	Aug-18	Nov-18
Company A	10	7	8
Company B	9	6	5
Company C	11	6	7
Company D	7	7	8

